ZEISS HISTORICA

Journal of the Zeiss Historica Society • Volume 20 • Number 1 • Spring 98

The Zeiss Historica Society of America is an educational, non-profit organization dedicated to the exchange of information on the history of the Carl Zeiss optical company and its affiliates, people and products from 1846 to the present.

Officers

Founder	Thomas Schreiner
President	Charles Barringer, Jr.
Vice President	Marc James Small
Secretary & Treasurer	Maurice Zubatkin
Editor	Lawrence Gubas
Archivist	Lawrence Gubas

Material for the journal should go to the editor (see above) at 24 Valley Drive, Randolph, NJ, USA, 07869-1028. Please send all other correspondence to Zeiss Historica Society, 300 Waxwing Drive, Cranbury, NJ 08512, USA. Annual membership dues: $27 (USA), $35 (Canada), $38 (Europe and Asia). Dues include subscription to Zeiss Historica, airmail postage overseas.

 Typesetting and printing by MacNab Print, 42 Borden Ave., Dartmouth, Nova Scotia, B3B 1C8.

On The Covers

Front Cover: The Zeiss Ikon Ikoflex III of 1939 (right), and the Ikoflex IIa of the early 1950s.
Back Cover: Jena Review back cover, Special Issue, Spring Fair, 1969.

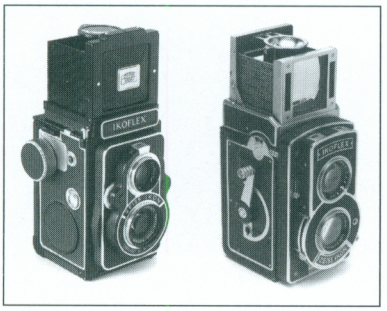


Illustration Sources

Front cover photos, "Polygons, Arcs and Ikons", "A Zeiss Ikon Baby": Joseph K. Brown, "Movikon16": Charles M. Barringer "On the trail of the Contax" - H. J. Kuc, "Notizen": from the collection of Kurt Jüttner, "Other Zeiss Items from Colin Trevelyan, "Post-War Carl Zeiss Jena Stereo Device": Pierpaolo Ghisetti. "Ergo": Maurice Zubatkin, Rear Cover: Jena Review.

EDITOR'S LETTER

My thanks to all of those who helped me with this, my first issue of the Journal as editor. It is hard to think that I am now filling the huge shoes of the late Bill Stone whose strong guiding hand we still sorely miss after many years of depending on him and his co-editor, Marion Husid. Marion has switched jobs with me with this issue. She is doing the book reviews and I am editing. Clearly both of these members have kept our primary product, the Journal, at the front of the class when compared to our sister publications. I will do my best to keep this tradition.

As usual, I have jumped into this job with a few items of my own but there are some great new items produced here by others as well. However, as editor, I need to respond to the wishes of the membership and so I would be very happy to hear from one and all on any subject. Please look at our annual index of all past Journal articles to review our past publications and feel free to ask me to address subjects of interest to you.

I would also like to call your attention to all of the working members of the Society in addition to Bill and Marion: Maurice Zubatkin who does all of the hard jobs such as collecting money, distributing the materials to the membership and keeping us all in the loop; Charlie Barringer who has headed our society for so many years that most of us have lost count of how long; It is now 19 years since Tom Schreiner got all of the Charter Members together and we have learned quite a bit from each other over that time. There are now books and charts and nearly 20 years of informative Journals that have been published. Some good friends have left us including Randall Scheid, John Dornfeld, Hubert Nerwin, Hans Padelt and, certainly, Ed Kaprelian. We have born these losses and still found many new friends with an interest in things Zeiss. I would also like to mention people like Nick Grossman, Mead Kibbey and Charlie Gellis who have acted as mentors to me in learning more and more about the products and people of the various Zeiss companies.

It is my hope that this issue will be of interest to you all and that you find a good deal of new things to interest you. Feel free to send us pictures and questions and, hopefully, soon you will be come the experts in our field. My address is in the text about the society on this page. Feel free to send me articles, pictures and questions. I may not get to it as fast as I should but I will get back to you. Thank you for your trust in giving me this responsibility.

Larry Gubas

Ikoflex III

Larry Gubas, Randolph, New Jersey

One of the most complicated of all the Zeiss Ikon patents covers the Ikoflex III's complicated film advance and rotating lever shutter cocking assembly. This was issued as US Patent No. 2,301,956 and attributed to Zeiss Ikon designers Heinz Küppenbender, Eugen Jörg, Ernst Rall and Heinrich Jacob. It was filed on February 2, 1939 and was approved on November 17, 1942 which was long after the last sample of this camera was manufactured. This work was clearly an attempt to trump the successful design of the Rolleiflex in a number of different ways and, at the same time, the firm would have a full and complete line of every sort of photographic product available to the buying public.

Earlier, Zeiss had attempted to purchase Franke & Heidecke over the years immediately after the creation of Zeiss Ikon, but the company was confident in its strong design and sound market position in spite of the coming movement to the 35 mm cameras and so remained independent. The early Ikoflex designs with modest Novar lenses had been more similar to the Voigtländer Superb rather than the Rollei designs but quickly the market had swung to the better features of the Rolleiflex. Even though the Rollei manufacturer was a primary customer for the Carl Zeiss Triotar and Tessar lenses, this competition was accelerated.

The Ikoflex III (pictured on the right side of our cover) was clearly a design specification leap over the Rollei. The patent was eight pages of nearly unintelligible verbiage with seven more pages of detailed drawings with most of them having 4 separate illustrations on each page. This was clearly not a shabby effort and, uncharacteristically, the patent united design efforts from three different Zeiss Ikon locations since Küppenbender worked in Dresden, Jörg and Rall in Stuttgart and Jacob in Berlin-Zehlendorf. The camera was manufactured in Berlin.

The new 1939 Ikoflex III (853/16) was truly a flashy-looking camera with all sorts of new features for a twin lens reflex. Among these new features:

- The fastest lens yet to be fitted on a 2 ¼" x 2 ¼" TLR - an 8 cm F 2.8 Tessar
- Shapely new frontal design with lots of satin chrome trim
- A new bright F 2.8 Teronar viewing lens
- Interlocking shutter and film winding mechanism
- A built-in Albada direct view eye-level sportsfinder
- A new 4x magnifier which covered the entire 2 ¼" x 2 ¼" viewfinder image screen
- The focusing screen was a light collecting lens
- Parallax correction was automatic from 3.5 feet to infinity

So fast a lens would not appear on a Rollei camera until the early 1950's. The viewing screen was a tremendous improvement over all prior versions, Zeiss and otherwise. The winding shutter mechanism was one of the most intricate ever made.

The camera, beyond its surface splash, was really a fancy add-on. The basic body structure and hinged back were effectively unchanged from those of the previous two Ikoflex models. The advancing mechanism was the only new feature added to the body. The viewfinder was totally new but was a module unto itself. By itself, it added nearly a ½" to the height of the camera. All of the lens accessories were the same as the Super Ikonta B since it was among the few non-35mm cameras to use a F2.8 Tessar.

Our cover shows this camera with the top of the line Zeiss Ikon TLR camera in 1953 which was 14 years after the introduction of the Ikoflex III. It would prove impractical to resurrect this camera after the war since lenses were so hard to get and all of the design documents, dies and plans as well as the manufacturing equipment had been seized as war reparations by Russian forces in Berlin. By comparison, this Ikoflex IIa had no lever film advance and a much simpler advance process. Zeiss Ikon adapted the knurled knobs of the Rollei instead of the smooth levers of the Ikoflex III. The lens specifications fell back to 75mm in format and a full F stop to 3.5. The viewfinder was largely the same but without a sexy Albada sports viewfinder. The sport viewfinder reverted to two openings with no optics.

Improvements in the Ic and the Favorit versions of this line would later be added but for only a very short period of time since Zeiss discontinued almost all cameras except for 35mm models by 1960 and only those on hand were sold off. The Ikoflex III lasted for only a year and since it was complicated and over engineered, the advance mechanism would fail easily and the complexity of the repair would cause the price of the repair to be extremely high with very few parts available. It is a beautiful camera and well worth treasuring but not something to make a user camera.

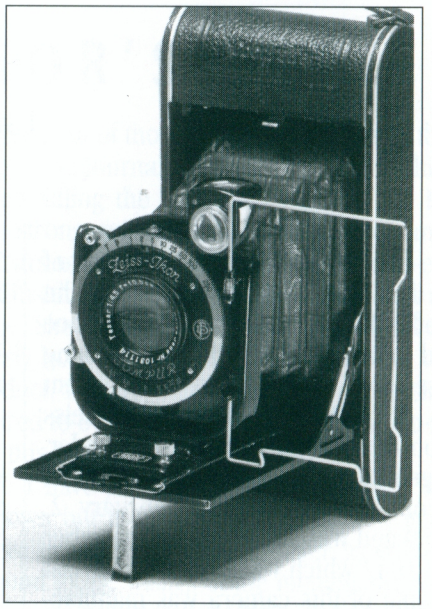
Other Ikoflex Information may be found in the 1983 Spring Issue of Zeiss Historica.

Polygons, Arcs & Ikons

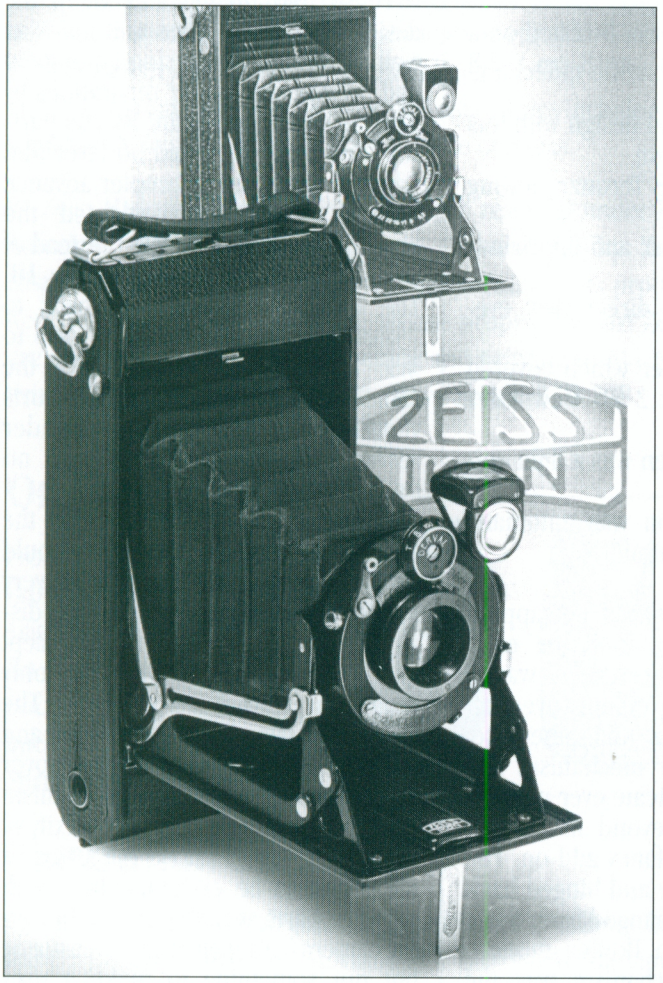
Joseph K. Brown, San Antonio, Texas

A product's unique shape or decoration can successfully identify the parent company in the minds of its customers, both actual and potential. The Volkswagen Beetle is an often-used example of the principle of strong corporate identity through distinctive design.

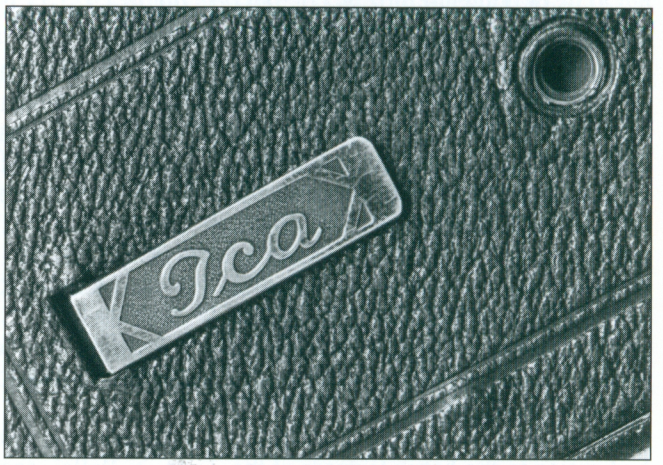
The hexagon, equilateral or elongated, was one of several geometric forms popularized by the 1925 Paris Exposition, and became a design element used to identify and embellish Zeiss Ikon products from shortly after the company's beginnings in 1926 until after World War II.



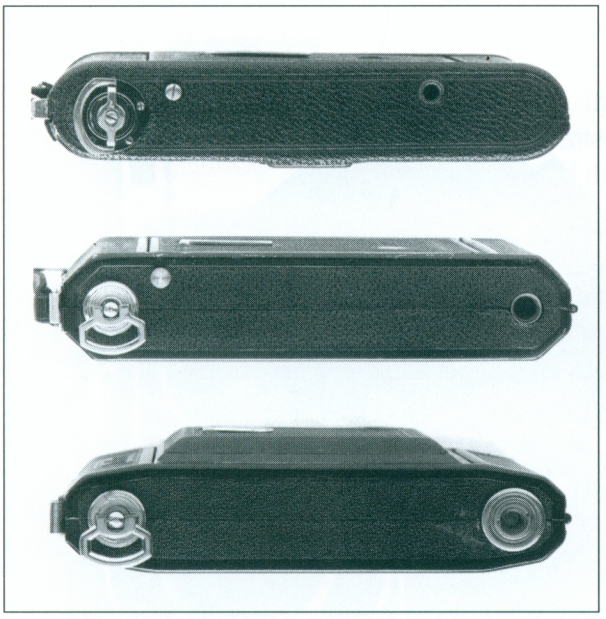
This Cocarette from predecessor firm Contessa Nettel prominently exhibits the Zeiss Ikon name in Ica-style script on the leveling foot and the shutter front.



The ancestral, or 'Ur'-Ikonta. This 1929 Zeiss Ikon camera was a stylistic trailblazer: it started the vogue for angular cameras so typical of the classic Zeiss Ikon line. After World War II many Japanese Ikonta 'clones' adopted the shape outright, while Nikon and Canon utilized angular shapes far longer. This first Ikonta was featured on Zeiss Ikon catalog in 1929 and 1930.

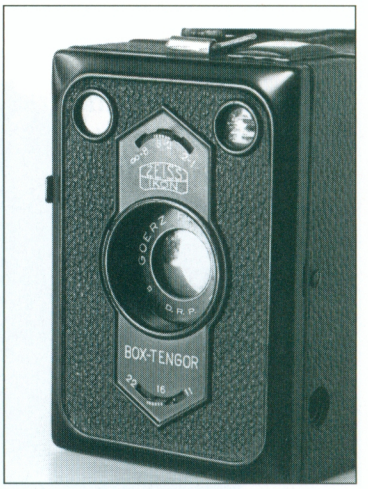


The hexagon was present, in a way, on some pre-Zeiss Ikon products like the Ica Icarette 6x9...and more obviously on the leveling foot of the first Zeiss Ikon Ikonta (520/2) a new name and model for 1929.



The body shape of Zeiss Ikon roll film cameras evolved from early rounded contours to faceted and polygonal outlines as shown in these three examples: Ica Icarette (top), Ikonta 520/2 (center), and Nettar 515/2.

A redesigned C-format body gave more room by 1934 for a larger name badge on this Nettar 515/2...

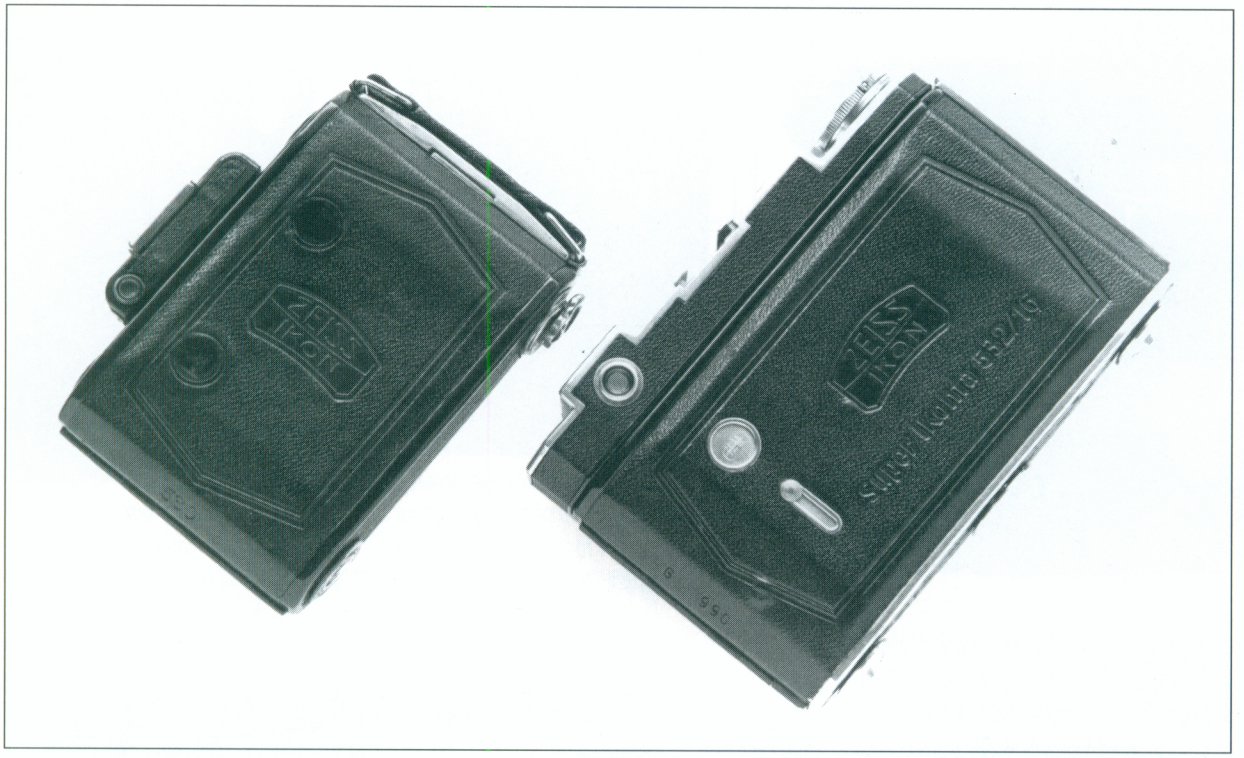


...and even the lowly Box Tengor of 1932 bore a hexagon after restyling.

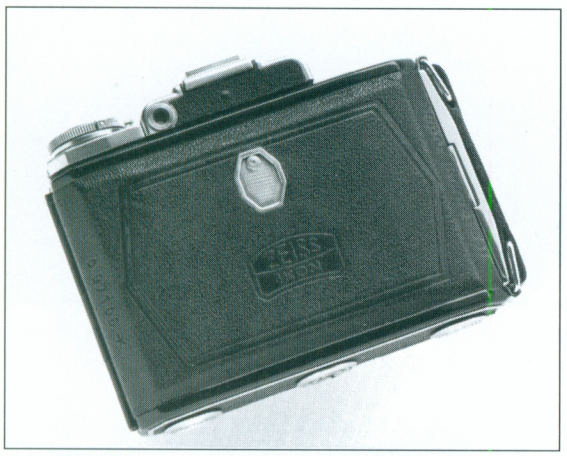
The embossed namebadge of a first edition Super Ikonta A (520). Zeiss Ikon advertising called the Super Ikontas "small cameras of large format."

Zeiss Ikon advertising of the 1920s showed numerous illustrations of their products alongside the identifying hexagon shape...

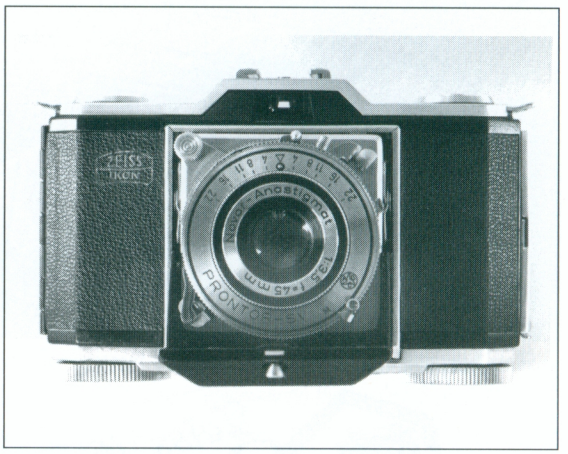
...a mark that gave instant identity to product cartons and small accessories like the self timer (right). (Barringer photo.)



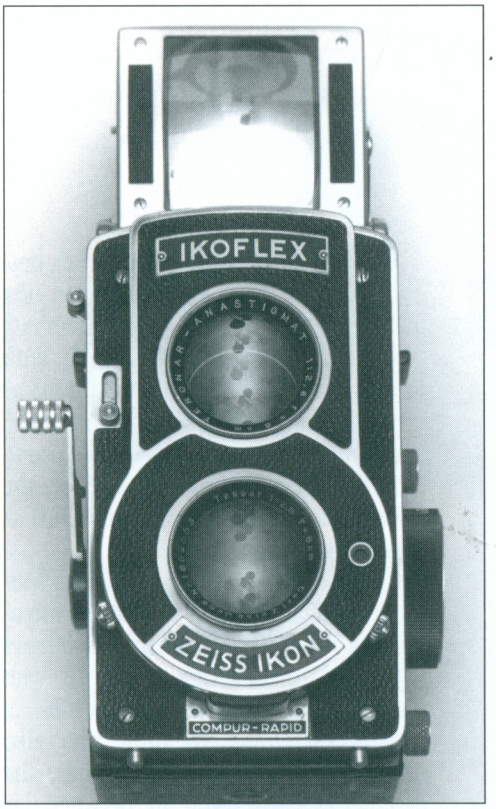
The backs of these Super Ikontas, a 1934 'A' (left), and a 1938 'B', show typical embossed decorations using a hexagonal stripe.



This early postwar Super Ikonta A (531) was among the last of the Zeiss Ikon cameras to carry the hexagon, a mark that finally disappeared...after a sunset curtain call as the contour of the Ikonta 35.



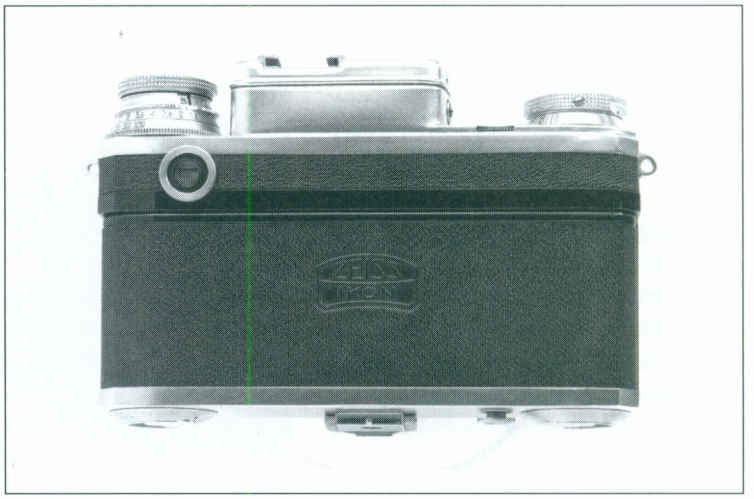
Colorful little decals inside Zeiss Ikon cameras show hexagons on the film cartons they advertised...like these actual vintage film cartons from the Barringer collection.



Arcs and circles give glash to the 1939 Ikoflex III which was styled with a blend of Deco and Moderne motifs, and was a high point in twin-lens design.

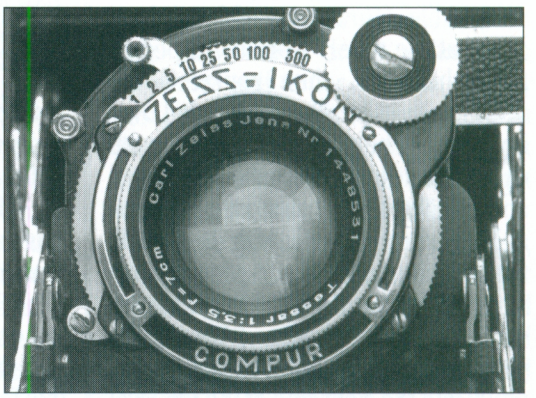
But was it all polygons?

By no means! A strong tradition of circular forms both whole and segmented was evident in Zeiss Ikon styling even during the hexagon period. And the hexagon wasn't used at all on the flagship Contax cameras which depended solely on the Zeiss Ikon doublet trade mark (see Zeiss Historica Fall 1996), a logo not co-incidentally nearly identical to that of Carl Zeiss Jena, the leading name in optics.



The back of a Contax III bears only the Zeiss Ikon logo. This says it all.

A typical Super Ikonta shutter uses the circular form as a maker's badge in modernistic style. These shutter plates vary widely in their designs...
...and include this Nettar's front, the design of which can be seen to anticipate the style of the later Ikoflex III.



The design of the Tenax I eschewed polygons by adopting curved contours (a throwback to the 1920s) and circular frontal decoration.

Today, some seventy-five years since their introduction, the Zeiss Ikon cameras with their circles and polygons still attract customers - now collectors - to the pleasures of owning examples of this photographic line that exhibited such carefully coordinated styling of so many distinctive and distinguished products.

Thanks to John Baca, Charles Barringer, and Larry Gubas, who contributed to this article.

The Movikon 16 System

Charles Barringer, Haddonfield, New Jersey

The salesman, having established my interest in Zeiss, slid the heavy elephant grain case across the counter, unlatched and opened the top. The beige plush interior was dominated by the austere black camera body with the familiar Zeiss Ikon prewar logo in one rounded corner of the flat, rectangular surface, a lens projecting to the side. Carefully studied nooks and crannies within the case and its lid contained three other lenses, several sunshades, filters, a turret-type universal finder, a small loupe, and several other items I could not identify. Risking a hernia, I lifted the camera out of its cradle to inspect it, and saw the word "Movikon" embossed on the carrying handle; the other pieces obviously went with it and were in equally beautiful shape.

At $150 the asking price seemed reasonable. (How reasonable I did not know at the time.) I briefly inspected the other bits, then replaced the Movikon in its cradle and handed over my cash. As he prepared to ring up the sale, the salesman hesitated, then lifted another item from behind the counter, a long chrome lens with a vaguely familiar appearance. "I don't know what this is exactly, but I think it goes with the movie camera. $50 and it's yours." The 18cm Tele-Tessar fit beautifully into the right side of the top level of the case. I produced another $50 without hesitation, and dashed out of the store with my prize.

Were this to happen today, my heartbeat would rise from the knowledge that I had just bought, nay stolen, a nearly complete Movikon 16 outfit. When this occurred in 1980, I knew only that I had just snagged an incredible "Zeiss device." But I also knew,

Outfit case as presented to me in 1980, with 18cm Tele-Tessar on right, filters and proxars in lid.

just looking at its many features and gadgets, that I would spend many hours of discovery with it.

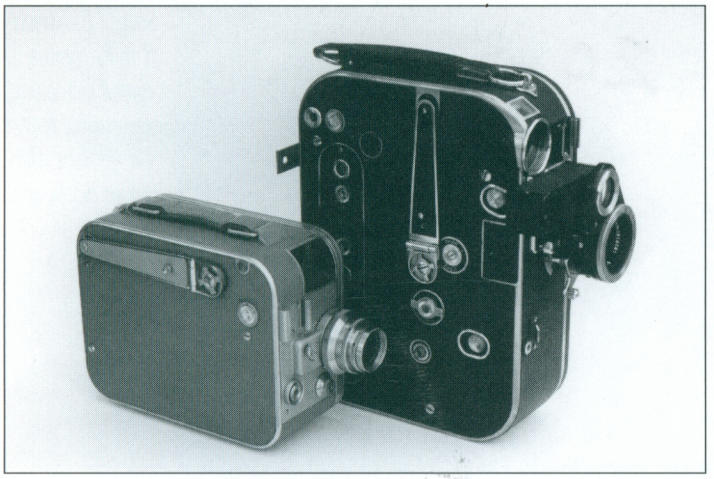
The Movikon 16 I had acquired was the flagship of the Zeiss Ikon amateur movie camera line in the 1930's, "The Universal 16mm Ciné Camera," to use their modest description. Although 35mm ciné was (and still is) the format of choice of professional cinematographers, 16mm was the next best thing in the 1930's. It was more accessible to the amateur than 35mm in terms of weight and cost while offering a substantial quality edge over smaller formats.

By the early thirties, the management of Zeiss Ikon, Dresden, had cleaned house after the 1926 merger. Feeling that the marque's dealers should be able to offer the world's best in every field, they authorized the development of a ciné system which could meet every challenge. With industry leader Ernemann on board as one of the component companies, Zeiss Ikon already had in-house know-how and existing cameras such as the 35mm Kinamo N25 and 16mm S10 as development platforms.

Brochures suggest a split personality for the Movikon, which was introduced in late 1935. Wealthy amateurs were obviously targeted, but as with the contemporaneous Contax line, a serious scientific vocation was also implied by the literature and by the accessories offered. In between lay 16mm documentary cinematography. As the system matured and world political events evolved, the Movikon 16 also became the tool of choice for the military, particularly air force, movie maker.

It was a substantial camera standing 20 cm (8″) high by 16 cm (6 1/4″) wide by 6.5 cm (2 1/2″) thick, weighing 2,640 g (5 3/4 lb.) without accessories, lenses, or film. Its standard features included:

- direct vision, parallax corrected viewfinder;
- frames for 2, 2.5, 5, 7.5cm lenses;
- built-in right-angle finder;
- rangefinder coupling for the 2.5 and 7.5cm lenses;
- 16mm film in either 100′ (33m) or 50′ (17m) spools;
- automatic film footage counter;
- easy loading, with semi-automatic release of sprocket rollers, and film gate;
- speeds of 12 to 48 frames per second, plus single frame (for animation);
- adjustable shutter sector widths



Comparison of grey K16 (front) and standard 16 (rear).

Some brochures and instruction manuals for Movikon 16 and K16.

(equivalent to differential shutter speeds);

- porthole accepting a threaded magnifier, for direct focusing on film;
- spring-loaded clockwork motor with ratcheted manual winding lever;
- six interchangeable lenses, from 1.5cm through 18cm;
- self-timer mechanism with cable release socket and tell-tale;
- rewind mechanism for fades and lap dissolves.

The basic optical equipment suggested by Zeiss Ikon (and most often seen today) consists of two superlative, rangefinder coupled Sonnars: a standard 2.5cm/f:1.4 and a long focus 7.5cm/4. In addition, four uncoupled lenses were available: two wide-angle Tessars (1.5cm/2.7 fixed focus and 2cm/2.7 in focusing mount) previously used in other 16mm ciné systems, a Sonnar 5cm/2.8 with a close-focusing helical, and the 18cm/6.3 Tele-Tessar (which gave a 40° field of view, equivalent to the field of a 600mm lens on a 35mm camera).

If your viewing needs could not be satisfied by the built-in frame lines, a number of auxiliary finders were also offered. The most striking is the 436/21 Universal with Its 2″ (50mm) long tube to show the narrow field of the 18cm/6.3 Tele-Tessar. These were delivered in a protective screw-top aluminum "can" case. The wide-angle lenses could be previewed through prismatic finders which slotted into the front vertical accessory shoe. The side shoe was used for the tubular "special" finder for the 7.5cm lens, which could be confused with the 436/11 tele-finder for 18cm lens on Contax except for the orientation of the rectangular front opening.

Filters, diopter lenses and sunshades were offered for each lens. Several finders, ranging from a simple frame sports finder through prismatic right-angle finders to a superb universal, were offered as well. Cases, tripods, some really esoteric widgets, and a substantial reproduction stand filled out the catalogue.

In the late 30's Zeiss Ikon made their system available to those who preferred the new Kodachrome reversal film in 50′ cartridges. The Movikon K-16 introduced in 1938 was squat and relatively simple compared to its older brother. Gone are the coupled rangefinder, multi-sectored shutter, fade and dissolve provisions (not possible with the cassette system) and the little claw which drops a hanky to show the self timer release (sorely missed). But the K-16 with the 2cm Tessar cost only 295 marks, (about 1/3 of the original's price) and weight was down to 1600 g (3 1/2 lb.)

The bayonet remains unchanged, but the 2.5cm and 7.5cm Sonnars for the K-16 lack the rotating prism and rangefinder coupling mechanism. All the uncoupled lenses can be fitted directly. Fields of view for the 2cm and 2.5cm lenses were built into the camera's viewer, and a mask flipped into the viewing path for the 5 and 7.5cm lenses. Interestingly, where black was the only color offered for the original Movikon 16, the K-16 was sold in both black and grey leather.

Given its short life before World - War II, the K-16 is much less common than the normal version today. The

standard Movikon 16 maintains its price due to its wonderful complexity, but the K-l6 fetches a premium because of its rarity, especially in black finish. Accessories for the system in general are rare, but those specifically for the K-16, including the special uncoupled lenses, are even more so.

The Movikon's role as a convenient test bed for optical ideas is suggested by several lenses. My favorite is a coated 1.3cm/3.5 Topogon (2,799,xxx) with a focusing mount and a wide flange which prevents its use on a regular K-16 unless the rangefinder prism is removed. (it can also be used directly on the K-l6.) I also have a focusing Tessar 1.5cm/2.7, normally found only in rigid mount. Its aluminum construction hints at wartime fabrication, even though the serial number (868,xxx) puts it in a much earlier batch. The Movikon's direct focusing feature would have been essential to take advantage of the focusing mounts of these lenses. An aluminum Tessar 5cm/2.8, possibly a remounted Contax lens, is unusual for the fact that a Sonnar (generally considered a better lens) of similar specifications already existed. Its very late wartime number (2,821 xxx) puts it in the very last batch of 5cm 2.8 Tessars produced in Jena before the introduction of the postwar lens recalculated for use on reflex cameras. In an unusual move, Zeiss lkon even offered an adapter allowing the use of Contax (outer bayonet) lenses on the Movikon 16.

One Movikon outfit I saw did not include the standard 2.5cm lens, but had a 5cm uncoupled Sonnar and the 7.5cm coupled Sonnar. Both were wartime lenses in the high 2,700,xxx and "T"-coated - 1941 manufacture according to the chart. In addition, the barrels of both lenses were engraved "Luftwaffeneigentum" (Air Force property). Inspecting the camera, I discovered a faint but clear inscription

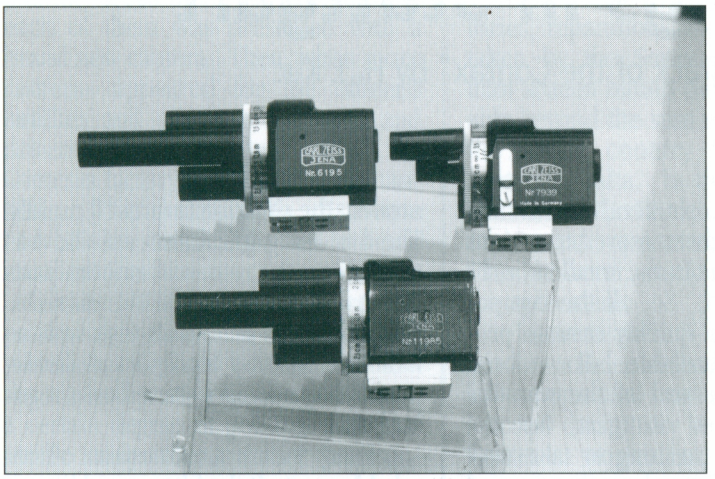
5cm/2.8 Sonnars, (L to R) chrome; T-coated aluminum; non-focusing bronze blc "S" lens without iris diaphragm.

Comparison of 5cm/2.8 Tessar (L) and 5cm/2.8 Sonnar (R), both in aluminum focusing mounts.

"1941" in the painted panel under the film counter; unfortunately, I have found no "Luftwaffe" property marks. I suspect this might be the original and complete outfit, as delivered to the German air force in 1941.

Another interesting lens with military markings has an unfinished bronze barrel, no diaphragm or focusing helical. The identification ring reads "S 1:2,8 f=5cm T blc Nr. 2749542", and "Luftwaffeneigentum" is engraved on the rear of the barrel. I speculate that the property markings, and its lack of adjustments, indicate that this lens might well have been used to record combat aircraft maneuvers. These wartime lenses attest to the Movikon's popularity with the armed forces and continued manufacture into the early forties.

Complementing the 5cm/2.8 "S" lens is an aiming device allowing the camera to be oriented by someone to the side and in front of the camera. It uses a 450 mirror and two circles which, when aligned using the lateral peephole, show the target which will be filmed by the camera. Perhaps this is the 5525/6 viewer for reproduction stand (see appendix below), but just as plausibly, it could be a special viewer for use when the rear of the camera is inaccessible, such as while mounted in an airplane fuselage or wing. Other devices for remote shutter release and



436/21 universal finders. Lower unit has 2cm turret; upper left has rare 1.5cm port. Standard Contax 436/7 (upper right) is shown for comparison.

435/21 Universal finder in unique aluminum screw-top protective case, required by vulnerable 5cm long tube for 18cm focal length.

heaters for using the Movikon in extreme cold also suggest that these were often mounted in aircraft. Please send documentation if you have any, as these are only conjectures.

Movikon did not survive the transition from war to peace. Some of them certainly continued to be used in scientific settings, but most sets were consigned to the back of the closet. Incremental progress such as reflex viewing, and better films which gave good results even with smaller, lighter 8mm cameras were responsible for the system's demise. But for lovers of excess, the remarkable Movikon 16 camera system with its sound design, meticulous craftsmanship, exquisite refinement and nearly endless complexity remains a testimonial to the no-compromise, world-beating attitude of the swaggering Zeiss Ikon photographic combine in the thirties.

Appendix - catalogue numbers relating to Movikon 16+K16 system

Basic Kits
5495 - Movikon 16 w/ Sonnar 2.5cm/1.4
5494J - Movikon K16 w/ Sonnar 2.5cm/1.4
5494P - Movikon K16 w/ Tessar 2cm/2.7

Lenses (incl. sunshade)
917/5 - Tessar 1.5cm/2.7 (16/Kl6)
917/1 - Sonnar 2.5cm/1.4 (Kl6)
917/4 - Tessar 2cm/2.7 (16)
921/4 - Tessar 2cm/2.7 (Kl6)
918/1 - Sonnar 2.5cm/1.4 RF (16)
917/3 - Sonnar 5cm/2.8 (16/Kl6)
918/2 - Sonnar 7.5cm/4 RF (16)
917/2 - Sonnar 7.5cm/4 (Kl6)
918/3 - Tele-Tessar 18cm/6.3 (16)

Finders
5495/25 - Prism finder (2.5cm lens)
5495/32 - Prism finder (1.5cm lens)
5495/31 - Frame finder (2.5cm lens)
5495/29 - Special finder (7.5cm lens)
436/21 - Universal finder (choice of 1.5cm or 2cm fitting)
5495/28 - Angle mirror for attaching to distance meter

Cases (Leather)
1732/10 - Large outfit(16)
5495/0 - Small outfit
1732/20 - Outfitw/21enses(Kl6)
1732/22 - Outfit w/2 lenses, 2 magazines

Filters, etc.
999/31 - 3 Proxar lenses for 1.5cm Tessar (999/1, 999/2, 999/3)
995/33 - 3 Proxar lenses for 2.5cm Sonnar (995/28, 995/29, 995/30)
989/31 - 3 yellow filters in case for 1.5cm Tessar
988/31 - 3 yellow filters in case for 2.5cm Sonnar
970/11 - 3 color filters for 2.5cm Sonnar
5490/19 - Filters in wooden case for "natural color work"
5495/15,16, 17 - Close-up lenses for use with Kodacolor film
5490/22,23 - Neutral density filters for use with Kodacolor film
982/1 - Softar lens for 2.5cm Sonnar various other filters for other lenses

Other Accessories
5490/15 - Extension tube
5495/24 - Focusing magnifier
5495/27 - Push-on diaphragm
5494/14 - Adapter, Contax lenses on K16
5495/26 - Diaphragm ring with scale on back, including factory fitting
1647 - Special metal tripod
1647/1 - Case for special metal tripod
1630/3 - 900 tilting head
1628/2 - Ball head for tripod
5525/1 - Reproduction apparatus
5525/6 - Special viewer for repro kit

New Beginnings In Stuttgart

An Excerpt from "On the Track of the Contax" by H. J. Kuc

When the war ended, Zeiss Ikon AG, Dresden controlled four large production facilities. In addition to the Ica and Ernemann factories in Dresden, there were the Goerz factories in Berlin and the Contessa works in Stuttgart. Each factory had its own specific mix of products. In Dresden, the Ica factory produced miniature format cameras while movie and small film cameras were made at Ernemann. The Goerz factory in the Friedenau section of Berlin made film, while the Goerz factory in Berlin-Zehlendorf built various small assemblies, parts and special lamps. All the roll film cameras were made at the Contessa factory in Stuttgart. This is just summary information and does not, of course, cover the entire Zeiss Ikon line, but perhaps will give the reader an idea of the scope of the company's activity.

When the Yalta agreement divided Germany into occupation zones, everyone realized that the Dresden factories would soon be in Russian hands. The future of Berlin was also far from clear. The only Zeiss Ikon facility that would not be under Russian control was the Contessa works in Stuttgart. Later, a legal shift of the company headquarters from Dresden to Stuttgart would take place on March 3, 1948.

Although Stuttgart's downtown area had been almost totally destroyed by bombing in 1944, the Contessa factory in the Heslach section of the city had come through almost unscathed. Windows had been broken and the roof damaged, but the factory was mostly intact.

During the last years of the war, camera production had been halted since the factory had produced items for the German armed forces. Half finished cameras, shutters, lenses and other parts had been moved to various storage locations in the small suburbs around Stuttgart. So, all the components needed to quickly resume production were available. For a brief period after the end of the war, the French occupied Stuttgart, but the Americans were waiting to take over the state of Württemberg as soon as the French withdrew. Stuttgart was strategically, economically and culturally an important urban center.

Within a few weeks after the end of the fighting, the Contessa factory was again turning out a small number of cameras. These were mostly Ikonta and Nettar roll film cameras. At the same time, Stuttgart quickly become a hub of activity for new camera development. Since it had been clear even before the war that the future belonged to the small "Leica size" camera, the trend toward miniature format continued at a feverish pace after the fighting stopped. The Kodak company's factory (the "Nagel-Werk") in Stuttgart was especially successful with their Retina cameras.

These new cameras were highly prized by Allied occupation troops. The French soldiers were very interested but they did not have very much cash. Understandable reservations about everything German certainly did not seem to apply to products of the German photographic industry. The prospect of being able to take a Zeiss Ikon camera back home inspired many soldiers to work miracles. Cameras were usually traded for food or other items in short supply on the German economy. But, somehow, the necessary spirit of cooperation between the German supplier and the potential French customer never fully developed. When the Americans arrived, the situation improved rapidly. The first thing the Americans did was to facilitate the return of camera parts that had been stored in the suburbs. While this was a difficult task with so little non-military transport available, production soon got started on a regular basis.

Every month an American officer would appear at the factory and buy up the entire production to sell to the GI's in their PX (military retail store). He paid cash, bringing briefcases full of German bank notes. One day a Zeiss Ikon employee told him that a check would be acceptable. From then on the officer appeared with a blank check that would be filled in on the spot for the proper amount. Within a short time, American troops all over the world were buying cameras made at the Contessa factory. In May of 1947, negotiations were opened with the Joint Export Import Association (JEIA) at the organization's headquarters in Minden, and normal international business operations were gradually reestablished.

At Yalta, the Allies had decided to levy demands for reparations on Germany. The Western Allies' demands soon proved to be much more modest than those of the Russians, and the Contessa factory benefited from this restraint. Nothing was dismantled, although for a time workers expected the same treatment as their colleagues in Dresden and Berlin. One day a group of officers from the four victorious powers inspected the facility to determine whether it would be practical to dismantle it. After their inspection tour, the worthy gentlemen expressed the opinion that the facility was obsolete and not worth taking for reparations. However, they were not completely convinced that their pre-

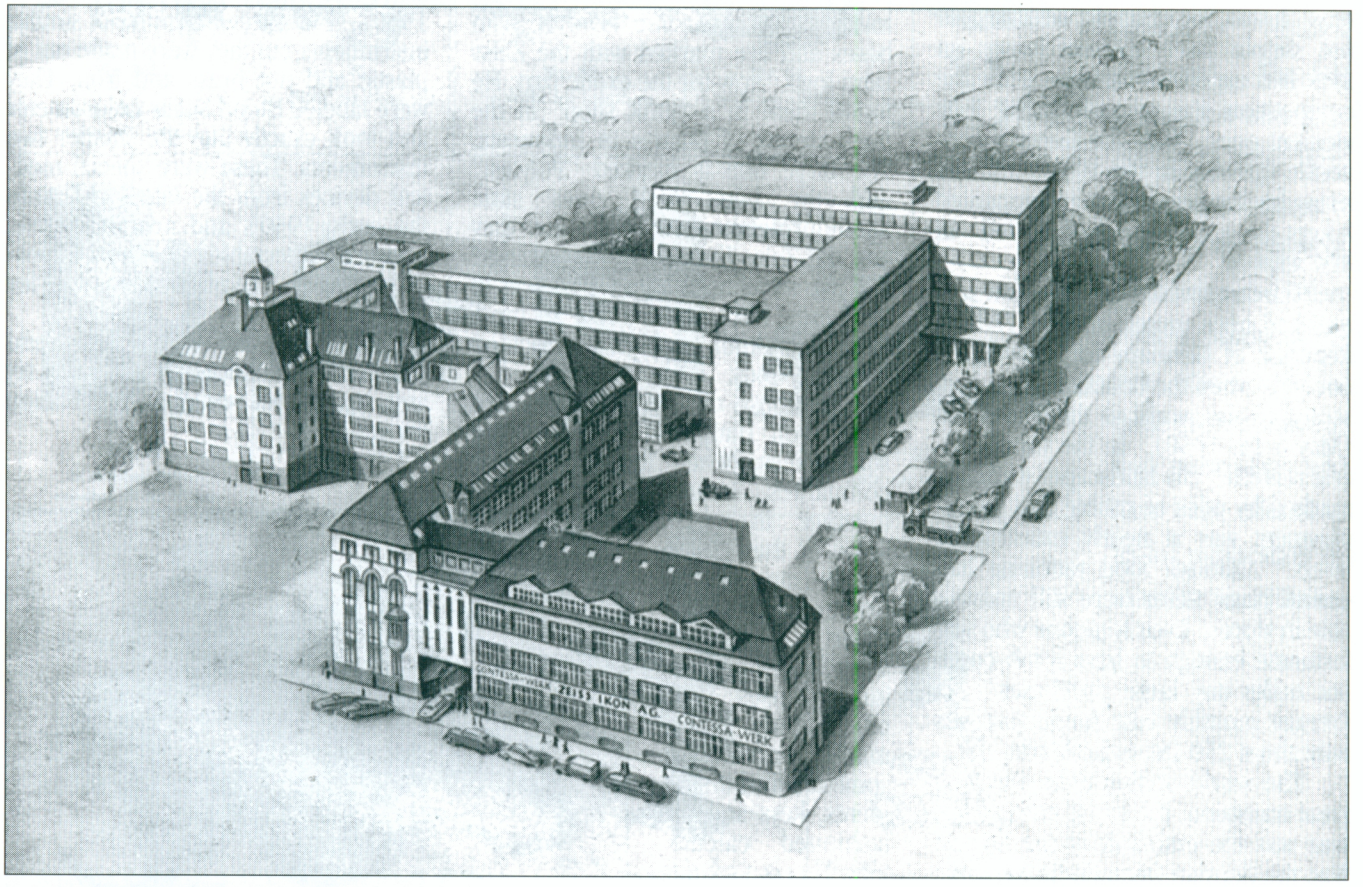
liminary assessment was correct until each of them was presented with a brand new camera. Then, when more cameras appeared for the officer's families and all their assistants and drivers, the decision was sealed: the Contessa factory would not be dismantled. The decision to distribute "advertising samples" proved to be an excellent investment.

In early 1946, the American occupation authorities had become convinced that it would be wiser to allow the western part of Germany to retain a certain degree of political and economic independence rather than confiscating everything that could be moved for reparations. In the eastern part of the country, the Soviets were a gross example of just the opposite, plundering without compunction. By 1953, the value of the dismantled factories, reparations and other services taken by the Soviets reached more than sixteen billion dollars - considerably beyond the sum of ten billion for the whole country that had been agreed at Yalta. In their sectors, the British and the French continued their reparation operations until 1951. They, however, stuck to the terms of the agreement.

In retrospect, it is surprising to see how independently the Contessa factory operated from the beginning. I learned during my research that the Contessa works had independently begun work on a new 35 mm design in the early 1940's - even though cameras of that format were formerly the exclusive domain of the Ica factory in Dresden.

Before the war, Zeiss Ikon had been Germany's leading camera manufacturer, although other producers had actually marketed more miniature format cameras. The result of the Zeiss Ikon management's belief that 35 mm cameras were only for the wealthy now began to become clear. The decision had clearly been a bad one, and their giant assortment of roll film cameras would have to be quickly replaced by miniature formats.

The problem now was how to manage this formidable task in difficult and uncertain economic times. Changing the existing lineup was difficult enough, and the loss of the Dresden factory made things still harder. The Contessa facility had been the smallest of the four major Zeiss Ikon



This artist's rendering of the Contessa factory shows the older buildings with the peaked roof and the new post-war buildings with the flat roof.

plants, employing only 600-800 workers. When Zeiss Ikon had formed by merging several smaller camera producers in 1926, development, administration and operations divisions had been centralized in Dresden. Now the administration and design departments had to be moved from the large Dresden facility to the smallest of Zeiss Ikon's factories while significantly expanding production. The small plant was not adequate for the job, and enormous problems in delivery resulted. It was not until an addition was dedicated in 1951 that there was a noticeable improvement.

Only Zeiss Ikon's extraordinary, if not supernatural, will to survive brought the company out of its post-war difficulties and built it back up to its pre-war position. Nevertheless, their pre-war business plan could not make up for the poor market position in inexpensive miniature format cameras. It was, for example, a mistake to use simple three element lenses on their less expensive cameras while the competition was already using four element ones. Only the German economic upswing in the 1950's and the rising buying power that accompanied it kept the accounts out of the red - at first anyway.

The three western occupation sectors had been united into the Federal Republic of Germany for only about one year when the Contax IIa was presented to the world at the Photokina (May 6-14, 1950). In the young federal republic, city landscapes were still marked by piles of rubble and unemployment was at nearly catastrophic levels. Although food rationing had ended, many items were still unavailable in stores. Even someone who was fortunate enough to have a job could not make any large purchases - an average monthly take home pay was only about 250 Deutsche Marks.

The world at this time was in a great transition: the worst news of the year was the outbreak of the Korean War, the German Democratic Republic (the Soviet occupation zone) and Poland signed an agreement to recognize the course of the Oder and Neiße rivers as their common border. The era of television had begun in West Germany. Minister of the Interior Gustav Heinemann had resigned in protest against the planned German rearmament, (unemployment was over two million out of a total population of 50 million) and Chinese troops occupied Tibet. In Stuttgart, the German soccer team defeated Switzerland 1:0 in the first international game since the end of the war

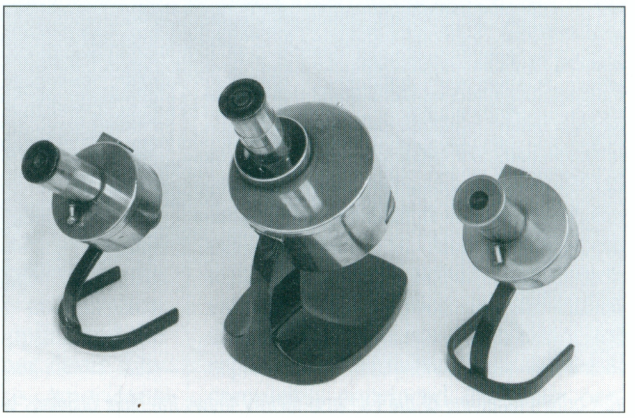
In Wetzlar, the Leitz company introduced the Leica III. Zeiss Ikon countered with its Contax IIa, billing it as "the mature design" (in German, Die Ausgereifte). The link with the continuing product line soon proved to be a successful marketing idea. It was, however, even more important that the advertising didn't promise too much.

Other Zeiss Ikon Items

Member Colin Trevelyan sends us a picture of three puzzles. They are lovely brass instruments with iron bases and are marked with the Zeiss Ikon logo. Now for the exotic part: He found them in a "junk shop" in the back streets of Jakarta in Indonesia. The large one is marked "Polytest" and the two small ones state Xanthoproteinometer. What are they and did Zeiss Ikon make such things? The two small ones have differences in the bases, the eyepieces and all three have a little knob at about 3 o'clock on the brass body.

For those of you who have seen Zeiss Ikon Hauptkatalogs, there are some clues. When the predecessor companies came together in 1926, some of these companies (most notably Goerz) made many other products including binoculars, lenses and other things. Goerz made searchlights, some medical instruments, keys and old fashioned calculators. This is a sample of the special purpose medical instruments which were made for many years and into the 1950's. I have seen samples of similar instruments but they were made out of plastic and not brass and iron. They were labeled Blood Sugar Colorometer and look exactly like the smaller two instruments. These were special medical devices from the late 1920's into the early 1930's and are, of course, rare and collectable but almost impossible to price. The plastic items sold for $10-20.

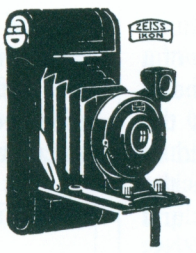
If you have any mystery items send snapshots of them to me and I will try and search out some documentation for you.



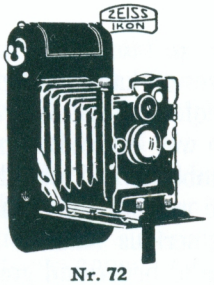
Zeiss Notizen

Nr. 102

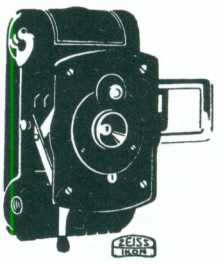
	a	b	c
Breite:	40	50	60 mm
Höhe:	45	56	67 mm



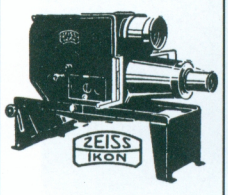
Nr. 103



Nr. 72
In diversen Größen
zwischen 20 bis 50 mm

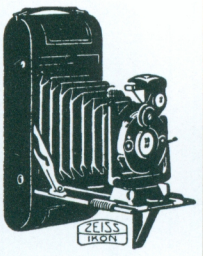


Nr. 104

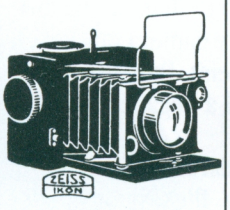


Nr. 105

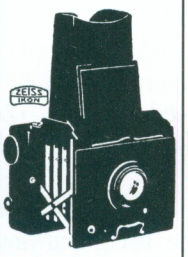
	a	b
Breite:	40	60 mm
Höhe:	32	48 mm



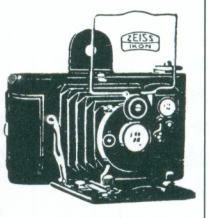
Nr. 70
In Größe wie Abbildung



Nr. 86
In Größe wie Abbildung

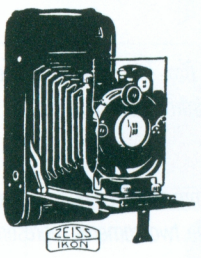


Nr. 54
In Größe wie Abbildung

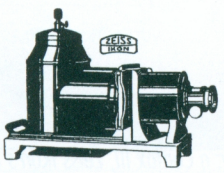


Nr. 85

	a	b	c	d	e
Breite:	19	23	28	36	45
Höhe:	19	23	28	36	45

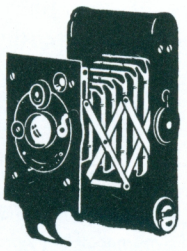


Nr. 96
In diversen Größen
zwischen 20 bis 50 mm

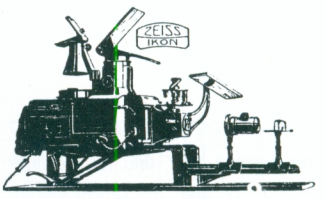


Nr. 111

	a	b
Breite:	40	60 mm
Höhe:	30	45 mm



Nr. 87

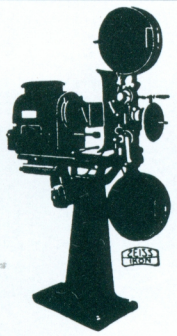


Nr. 83
In Größe wie Abbildung

Nr. 88

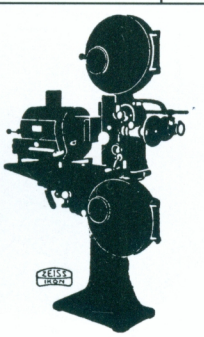
Nr. 106

In Größe wie Abbildung



Nr. 92

	a	b	c
Breite:	30	35	45 mm
Höhe:	60	75	90 mm



Nr. 90

	a	b	c
Breite:	36	45	54 mm
Höhe:	60	75	90 mm

Nr. 84

	a	b	c
Breite:	29	38	72 mm
Höhe:	50	65	120 mm

Periodically, Carl Zeiss, Jena and Zeiss Ikon printed a special magazine of preconstructed advertising that contained all of the artwork necessary for a small brochure for a local store or for newspaper, magazine or other advertising. This publication was named Notizen (Notices). The following is from a special 1929 Zeiss Ikon edition and shows a cross of the cameras of the day and other related products. As you can imagine these are very hard to find these days and have been offered to us for publication by member Kurt Jüttner.

A Zeiss Ikon Baby

Joseph K. Brown, San Antonio, Texas

One of the initial Zeiss Ikon products along with the Ikonette, Ikonta and Kolibri, was the Baby Box Tengor, a simple snapshot camera usually found equipped with a Goerz Frontar meniscus lens although it was offered also with an optional Novar lens. Its name 'Tengor' followed a C.P. Goerz tradition of product names derived from the Latin word tenax, an allusion to a camera's ability to hold onto, or make permanent, an otherwise fleeting moment of time. (The English word 'tenacity' comes from the same root). C.P. Goerz was one of the companies comprising the Zeiss Ikon 1926 amalgamation.

The 1930 Zeiss Ikon catalogue, available to Zeiss Historica members as a bonus reprint, presented the Baby Box Tengor on page 7 as an elementary 'system' camera complete with tripod, daylight enlarger, developing tray, film cutter, and print album ... a real challenge to those collectors priding themselves on knowing every one of a myriad of product code numbers. This set was evidently aimed at the young hobbyist and was designed to start the tyro photographer on the road to serious amateur work and therefore to better and grander Zeiss Ikons.

The designation 'Baby' was no exaggeration; the little Box Tengor being an attempt to cash in on the then emerging miniature camera market. It used No. 127 (Zeiss Ikon A-8) roll film and produced a negative 1 5/8" by 2 1/4".

Its initial appearance is shown in the accompanying illustrations; later versions of the Baby Box Tengor were embellished with the elongated hexagon that graced the fronts of so many of Zeiss Ikon's cameras of the thirties. Clean examples of the Baby Box Tengor seem not to be particularly rare and the diminutive Baby makes a good contrast when sharing the collector's shelf with other, more complex contemporary Zeiss Ikons, such as the Contaflex, Contax or Tenax II.

The Zeiss Ikon Baby Box Tengor, an entry level camera when it was introduced in 1930.

What's inside there, anyway? Among the parts shown are (a) the cable release socket, (b) the shutter tripping lever, and (c) the time exposure selector. Even after more than 65 years, this simple mechanism still works well

The exalted and the lowly: a Contax III, Zeiss Ikon's 35mm market leader, contrasts dramatically with the tiny, simple Baby Box Tengor. The two cameras represented extremes of the Zeiss Ikon lineup of the mid-1930s.

Post-War Carl Zeiss Jena Stereo Device

Pierpaolo Ghisetti, Modena, Italy

Zeiss has always shown a great interest in stereo photography and the stereo devices made by Zeiss Ikon were complex and expensive. The device here pictured on a Contax IIIa was made by Carl Zeiss, Jena after the war is certainly simple by comparison and economical too.

The barrel has the typical aluminum chrome finish of the Jena post war factory and comes complete with the Quality Symbol and two different numbers which could be considered serial numbers. The number "00369" is placed under the superimposed 1 and Q while "Nr.30808" followed by the red T that signifies use of the coating process.

This device is designed to fit into the filter screw mounting of either the F 2 or F1.5 50 mm normal lens for the Contax which has a 40.5 diameter. The device consists of two prisms inside the barrel at pretty severe angles. This and the engraving " F = 50 / 0,15 - 2 m" certainly indicate that it was a device for macro use. I have never seen this device in any book or catalog on the Contax or other Zeiss Ikon cameras or Carl Zeiss accessories. Anyone with more information, please feel free to contact me.

Editors Note: We have discussed in these pages several times over the past few years, the full explanation of this 1 and Q marking shown in the picture on the side of this stereo device. As we suspected, it means First Quality and was used only during the period of the East German government from the end of the war until 1989. At that time, there existed a central state authority named ASMW (Amt für Standardisieren, Messwesen und Warenprüfung - Office for Standardization, Measurement and Product Examination) in Berlin. This authority was empowered to award this mark as a kind of prize or emblem for the top products of the socialistic economy. East German factories had to apply for it and fill all of the standards (high quality in design and manufacture, etc.) which was necessarily a difficult process. My source in Germany was a bit skeptical on the effectiveness of this program in exporting products since 80+ percent of the Zeiss product range was sent to other socialist countries where there was little other competition.

▲ This advertisement appeared in Century Magazine in May, 1899. Because there were not income taxes in the United States until 1913, tariffs on imports accounted for nearly all government funds. If Carl Zeiss had exported to the United States, it would have substantially increased the price of their products. Instead, they licensed their inventions to other manufacturers. In the U.S., it was Bausch & Lomb based in Rochester.

Zeiss considered center focusing to be scientifically inferior to individual eyepiece focusing and did not adopt it for nearly 15 years after they invented the modern prism binocular. Bausch and Lomb did it much earlier on their Zeiss patented binocular, just after the turn of the century. The nearby advertisement shows the entire early line of binoculars compared to an "old style" non prism glass. It clearly shows the benefit of compactness of the Zeiss prism model to the Galilean model of similar magnification.

Meanwhile, another advertisement for binoculars appeared in the Russian newspapers with the major text in Russian and therefore Cyrillic lettering. However, since the eventual Zeiss office in St. Petersburg had not yet opened, the codewords and addresses of the locations from which binoculars could be ordered (which were in Berlin or London) were printed in Latinic letters so that mail or telegraph orders could be easily placed. Interesting, the full line of pre-1900 binoculars were listed in the table except for the 5 and 10 x revolving eyepiece model.

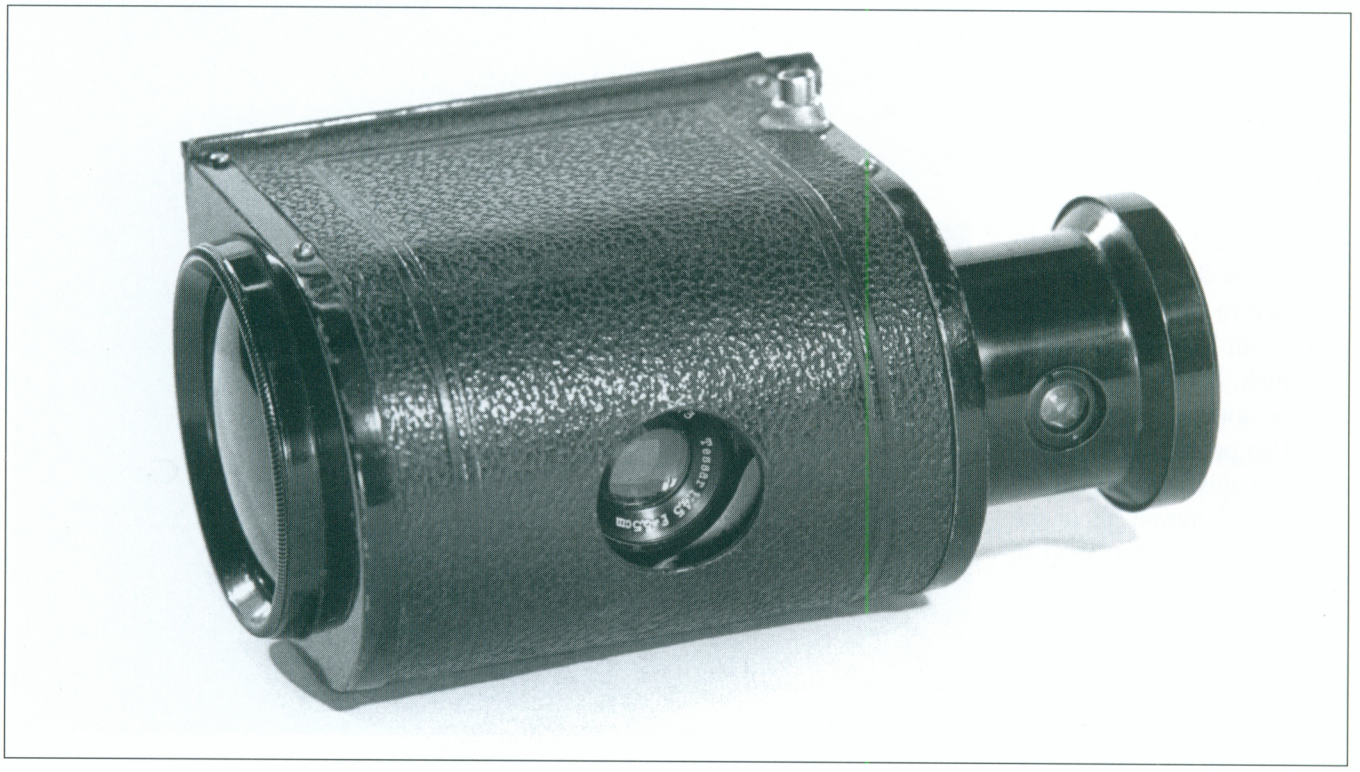
The Ergo

Among the rarest and unique of the Zeiss Ikon cameras is the Ergo. It is based on the design of a small telescope or monocular. It is small enough to hold securely in one hand. As you hold it to your eye, your hand is wrapped around the small format (4.5 x 5 cm) plate and the false objective is to the front. The true objective is a 5.5 cm F 4.5 Carl Zeiss Tessar aimed 90 degrees to your left. The viewfinder is a small prism based system totally in the eyepiece of the monocular. It had an especially designed built-in shutter which fired at 1, 1/25, 1/50, 1/75, 1/100 and Time exposure settings.

This camera was based on a 1909 design of the Nettel Cameraworks before any uniting with Contessa or Zeiss Ikon. There was a fascination with detective and secret cameras in that period and the new glasses and prisms from the Schott Glassworks made this new design feasible. The camera was trademarked as the "Argus" but was better known in England as the W. Watson Monocular Camera. This was because many of the German camera firms exported their products to other locations using the local names of the distributor and retailers.

The design fell into disuse and was reborn again as before in 1924 by Contessa Nettel. Since Ica and Contessa Nettel were sharing their marketing efforts at this time, it appeared in their combined and separate catalogs. After 1926, the inventory carried the Zeiss Ikon trademark. The camera was made quickly obsolete by the new 35mm format and miniature cameras in general and so it quickly fell by the wayside. It last appeared in the general catalog of 1932 and 41 of these cameras were still in inventory in 1934. The original dealer's price was 180 marks and was now going for 65. It came complete with cable release, six film plate holders and a leather case.

Since it was meant to be a secret device, there are no ostentatious markings but rather only the trademark of the manufacturer (Contessa Nettel or Zeiss Ikon) pressed into the leather. The shutter was released by pressing the metal release visible just in front of the film holder and the monocular eyepiece. A built in lens cover slipped in front of the Tessar lens when not in use. I have not found any reference to this item in the American catalogs but I have in British and Canadian. Both the Contessa Nettel and Zeiss Ikon versions are extremely rare and so very collectible today.



Finding Zeiss Ikon In Unsuspected Places

Since I am always on the lookout for Zeiss Ikon cameras, I am happy to seem them in unsuspecting places. Most recently, I noted a Super Ikonta BX in excellent condition inside a hollow oriental statue in the first murder scene in one of my favorite movies, "The Big Sleep" This BX was set up as a camera for blackmail purposes and is discovered by Humphrey Bogart as he enters the murder scene as Philip Marlowe in the famous 1946 thriller with his then new wife, Lauren Bacall. Rent the tape and check it out. It was in mint condition.

In yet another discovery along these lines, I submit the enclosed picture from Hans Jürgen Kuc. It is a painting in the famous Ford Museum in Dearborn, Michigan and it shows Henry Ford II with the Detroit plant in the background. In the left portion of the picture is a Contax III sitting on a terrace wall. Seemingly, it has a 135mm Sonnar mounted and ready for use. This painting dated 1944 hangs in this museum where Henry Ford moved all of the effects from the workshop of Thomas Alva Edison and many other exhibits of things of the 20th Century. It is fitting that a Contax has made its way there.

BOOK REVIEWS

German Military Technology: The Optical Equipment

Descriptive Documents Circulated by Carl Zeiss Jena, 1930 - 1940

by Hans T. Seeger, Hamburg

In the latter part of the nineteenth century, the Carl Zeiss firm endowed and assisted in the direction of the University of Jena so that it in essence, became their laboratory. In the years before World War II, civilians and officers of the German Armed Forces were given a comprehensive technical education, earning degrees in engineering. The expanded knowledge available at the university attracted many who would lead the optical revolution from Jena. As a result, when the German military placed numerous orders for research and development, it often was with Zeiss. In fact, to accomplish their goals, the high command's specific requests stimulated a decade of remarkable creativity at Zeiss. In his 1997 contribution to the world of optics, Dr. Seeger takes the reader to view the results of this creativity.

Beginning with the List of Contents, one glance excites the reader's imagination with its variety - cameras, telescopes, searchlights, periscopes, gun sights, testing equipment for weapons and ammunition, rangefinders and other military optical instruments that Zeiss provided to all services. At the time, Carl Zeiss in Jena with Schott Glasswork represented the heart of the industry.

A comprehensive understanding of this notable ten year period becomes substantial in Seeger's weighty book. Each facsimile page, from dated publications originally distributed by Carl Zeiss Jena (and its subsidiary, Nedinsco, Venlo), carries an image of the instrument, along with detailed specifications of materials, size and weight, uses and date of issue. Also, 600 pages illustrating and explaining over 250 items has an easily accessible format. Corresponding with the Contents page and aligned numerically on the right is a tab system like an easily accessible staircase, the page numbers in one line gradually descend. Having this at one's fingertips in this unique manner eliminates having to flip through the pages. In paper form, this "select and enter" is both efficient and helpful.

To whet your interest, the following entries are only some of the fifteen available: Terrestrial Cameras, Cameras for Testing Purposes, Telescopes, Optical Signaling Equipment, Searchlights, Periscopes for Ships, Sights for Sea Service, Machine-gun Sights.

Not only is this book a necessity for optical researchers, collectors, curators and historians, it also belongs to the curious mind that will find enjoyment in the multifaceted wide ranging capabilities of the lens and their housings that emerged from Carl Zeiss Jena. Also for our long time and newest members, this book introduces yet another aspect of the fascinating world of the Carl Zeiss firm since its inception in 1846.

Two items that embody extraordinary creativity from this reader's perspective were a Scherenfernrohr (Stereo Telescope) and a Fernkamera (Long Distance Camera). The Stereo Telescope brought strong perspective and depth due to its strong separation

of objectives and the long distance camera, designed for photographing military terrain with "fine details even in the farthest most remote distance" (an English translation of the accompanying German) carries a plywood housing. For easier portability, however, the housing of this camera was made of the lightest material - linen layers, instead of wood. Attached to a tripod, this camera collapsed and folded into its attached frame.

This is a fascinating book for its information, artwork and format. For members who are unfamiliar with all of the instruments, a dictionary in German with your native language's terms will help. Of course, the images speak for themselves in Dr. Seeger's most enlightening, Germany Military Technology: The Optical Equipment.

Other books from Dr. Hans T. Seeger:

Feldstecher (Fernglaser in Wandel der Zeit), 1989

Military Binoculars and Telescopes for Land, Air and Sea Service, 1996

In the US, these books may be ordered through the SCM Corporation, Deutsche Optik, 4606 Mission Gorge Place, San Diego, CA 92120. Telephone 1-800-225-9407. Internationally, contact the printer Druckerei Kempkes, Insustriestrasse 3/4/5, D-35075 Gladenbach, Germany. Telephone + 49 6462 - 2060

For more Zeiss Historica reading on this subject see your annual index.

Zeiss Ikon 1939

Offered by Terence J. Sheehy

Sandwiched between eighteen advertisements published from 1937 to 1942 in the British magazine, The Amateur Photographer, lies an enlarged facsimile of a forty page 1939 Zeiss Ikon catalog entitled "If only I had my camera". Mr. Sheehy acknowledges the permission of the Carl Zeiss Optical Museum in Oberkochen for the use of these advertisements and historical information.

This A4 sized black, white and gray reproduction is available directly from Mr. Sheehy at Classic Camera Collector Publications, 39 Beechwood Avenue, Orpington, Kent BR6 7EZ, England. Price: In the UK £10.50; USA, Canada, Hong Kong £18.00 (first class airmail); New Zealand, Japan, Philippines £18.50 (first class airmail). Check should be drawn on a British Bank in £ Sterling, International Money Order only.

Book Reviews by Marion Husid

The Zeiss Achromat Trademark

I recently discovered two interesting items about this famous Zeiss trademark. First, there is a photo copy of the issuing certificate of the approved trademark from the German trademark office in Berlin dated June 24, 1904 and a short article on the designer in a recent Zeiss internal publication, "Zeiss Im Bild" (Zeiss In Pictures).

In the northern part of Jena, there is a street named after Erich Kuithan (1875-1917) who was an important artist and painter who first gained prominent notice in Munich. He moved to Jena in 1903 where he opened an art school and taught drawing, painting and model making. He also acted as a consultant to the Carl Zeiss firm with regard to catalog layout and design. He organized the various pieces of artwork and illustrations within those early catalogs. It was he who designed this famous trademark for the firm. He later became a Professor in the new Art Department in the University and also the State Art Academy in Wannsee.

A New Zeiss Binocular

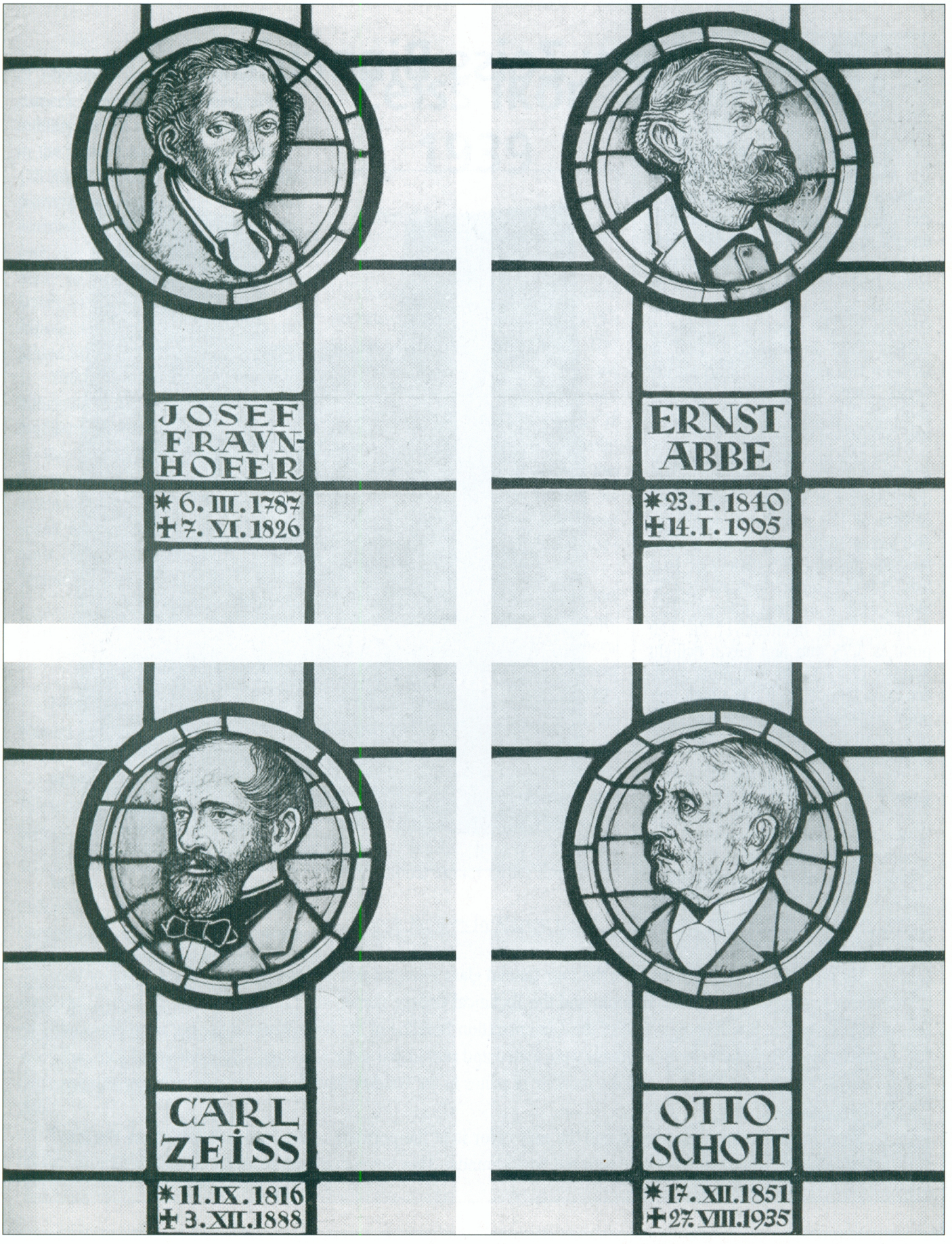
A product from Carl Zeiss has the unlikely name of Diafun and as you can tell from the accompanying picture, it is certainly a modern design. It is based on the tried and true design of the Dialyt which was pioneered by Hensoldt before its amalgamation into Carl Zeiss. The name is traceable to ancient Latin and Greek: "Dia" is Latin for two and "Lyt" is short for the Greek "litein" which means stone. In short this translates into a prism system comprised of two glass parts.

The new product has a magnification of 8x and an unrestricted objective diameter of 30 mm. It has a field of view of 120 m at 1000 meters or 360 feet at 1000 yards. It has a close focusing distance of 5 meters or 16.4 feet. It is 5.63 inches high and is 4.37 inches wide at a 65mm interpupillary distance. The diameter of the exit pupil is 3.75 mm and has a twilight number of 15.5. As with most modern Zeiss binoculars it has a high eyepoint eyepiece for a full field view with or without glasses as well as multilayer coating

The retail price in the US will be $525.

On our rear cover are pictures of the four stained glass windows that are now found in the stairwell of the building containing the Optical Museum and the Technical College named after Hermann Pistor in Jena. They originally were in the Reception Hall of the Administration Building of the Zeiss Works there but were removed and relocated when the original buildings were gutted and remodeled some years ago. The names and dates are no longer a part of the window and the number of panes in the window have been increased to better support the heavy glass.

Their basic windows are frosted and the only color is in the portraits of the four founders of the German optical industry. The framing is blue with red backgrounds. They are remarkably beautiful in their setting.


JOSEF
FRAUN-
HOFER
* 6. III. 1787
† 7. VI. 1826
ERNST
ABBE
* 23. I. 1840
† 14. I. 1905
CARL
ZEISS
* 11. IX. 1816
† 3. XII. 1888
OTTO
SCHOTT
* 17. XII. 1851
† 27. VIII. 1935