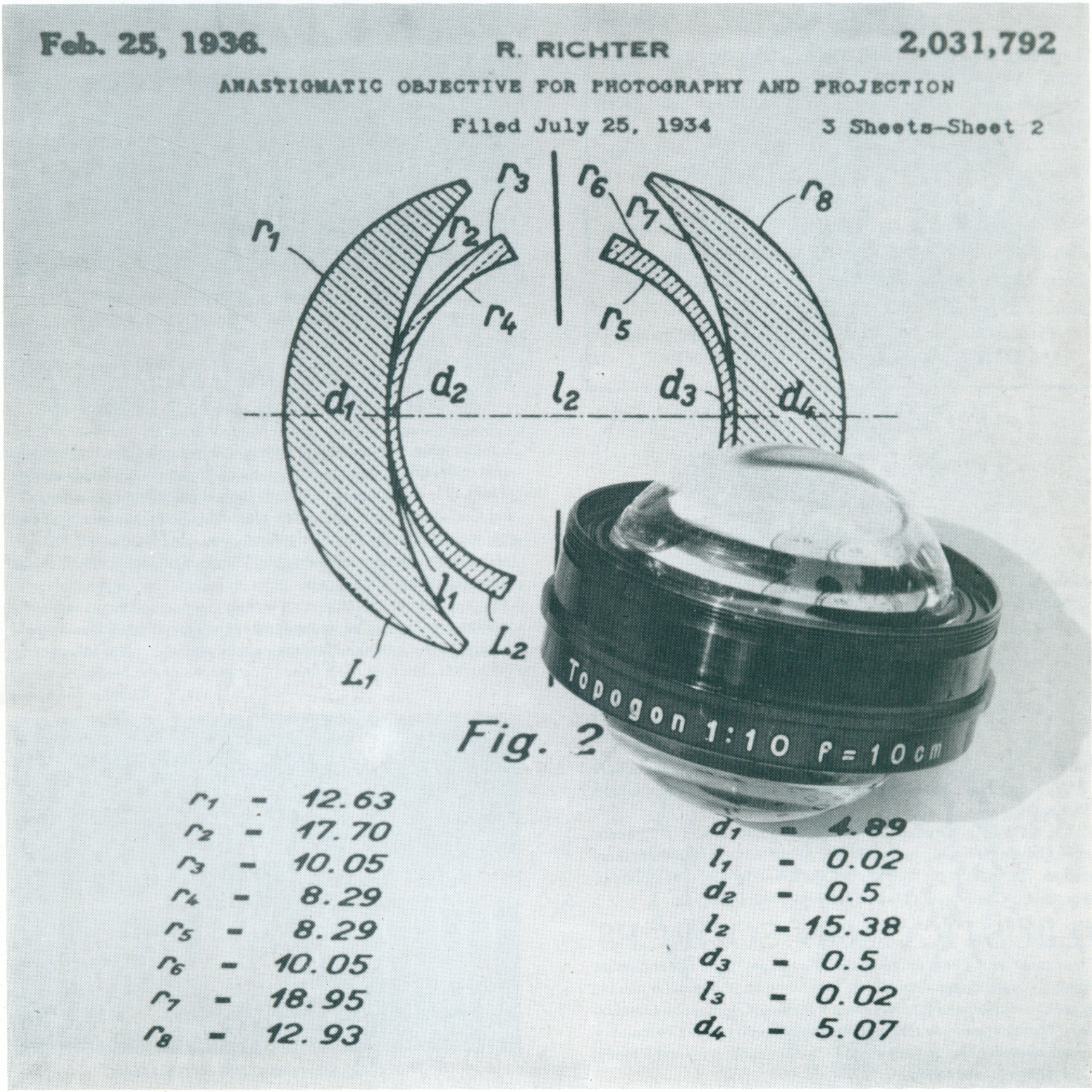
ZEISS HISTORICA

The Journal of the Zeiss Historica Society • Volume 12, Number 2 • Autumn, 1990



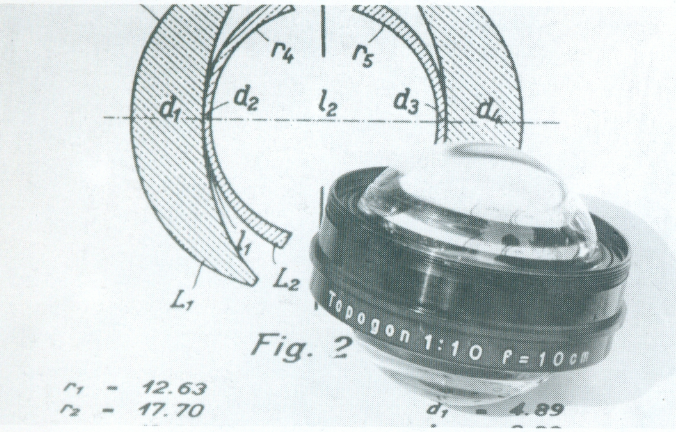
The Zeiss Historica Society of America is an educational, non-profit society dedicated to the study and exchange of information on the history of the Carl Zeiss optical company and affiliates, its people and products from 1846 to the present.

OFFICERS

Founder	Thomas Schreiner
President	Charles Barringer, Jr.
Secretary	Maurice Zubatkin
Treasurer	Maurice Zubatkin
Archivist	Lawrence Gubas
Journal Editors	Marion Husid
	William Stone

Address all enquiries to:
Lawrence Gubas, 24 Valley Drive, Randolph, N.J. 07869, USA. Annual Membership Dues: North America, $20., Overseas, $30. Dues include subscription to Zeiss Historica Journal, airmail postage overseas.

Type-setting and printing: The Warren Press, Inc.
6 Lake Avenue, Danbury, Connecticut 06810.



ON THE COVERS

FRONT COVER: 10cm Topogon against copy of Richter's 1936 US Patent.
BACK COVER: Miroflex ad from 1927/1928 edition of "Photofreund Jahrbuch" published in Berlin. While ad is for the Zeiss Ikon product, the Zeiss Ikon logo has not yet found its way to the body of the camera. Camera is still the Contessa-Nettel product.

ILLUSTRATION SOURCES

Front cover and Topogon photos, C. Barringer, Jr. • Great Contax Mystery photos, except as noted, by Sam Sherman. • Binocular photos, Eugene Zartarian and Kevin Kuhne. • Photos of Augustana telescope, Astro I catalog, and 15x telescope (Lichtstrahlen) by Nick Grossman. • Shutter photos (Lichtstrahlen) by Maurice Zubatkin. • Manufacturers' codes photos by the Editor.

The Nedinsco plant's tallest structure: used to test long optical instruments such as periscopes prior to shipment.

ZEISS IN THE NETHERLANDS A PICTORIAL FOLLOW-UP

In Volume 9, Number 1, Spring 1987 issue of the Journal this author described the connection that existed prior to and during World War II between the Dutch optical company Nedinsco B.V. and Carl Zeiss, Jena. The article closed with this sentence: "Should you visit Venlo, in The Netherlands, you can find the B.V. Nederlandse Instrumenten Compagnie (Nedinsco) doing business at Molensingel 17, 5912 Venlo."

In the spring of 1990 this author was fortunate to have the opportunity to visit Venlo, and to have as a guide our fellow Society member Mr. Adriaan Matthijs, who lives in Velden, adjacent to Venlo. Mr. Matthijs took these photographs of the Nedinsco plant.

Nicholas Grossman

One of the entrances to the Nedinsco plant.

THE TOPOGON WIDE-ANGLE

Joachim Arnz, Jena, Germany

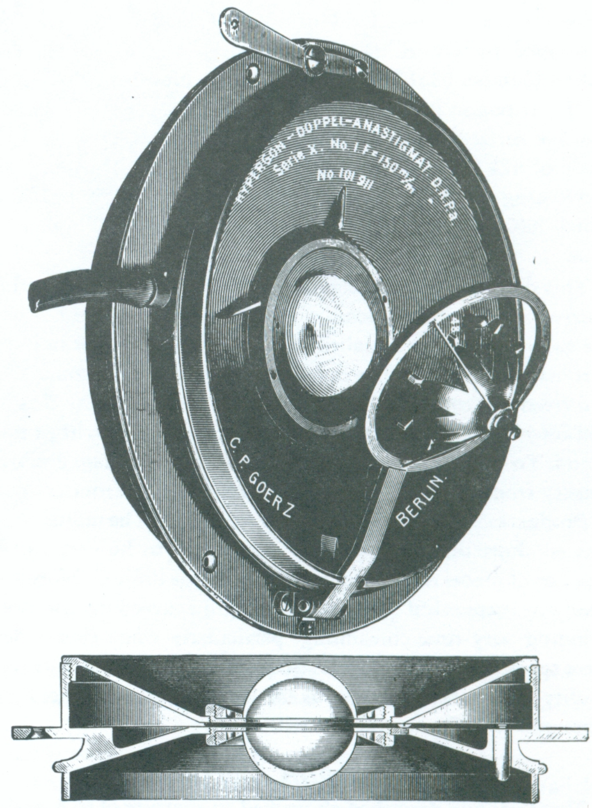
With the introduction of the dry plate in 1875, photography gained greatly in popularity. Demand increased for telephoto and wide-angle lenses which could alter the composition of images.

Existing designs like the Aplanat, Periscop, and Triplet were unsuitable for use as wide-angles — lenses whose focal lengths were less than the diagonal of the plate. Image quality suffered greatly at the edges of the image. The causes were little or no correction of astigmatism and curvature of the image plane.

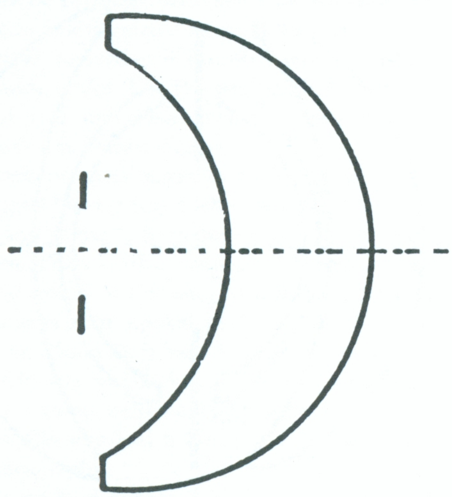
Many experimental designs had shown some degree of success at correcting these problems. Among them was one which deserves credit for providing the basis of the Topogon. This was an anastigmatic meniscus designed by Emil von Hoegh (1865-1915) in 1900. Its design was as simple as it was ingenious. Both the curved surfaces of this design point in the same direction and have the same curvature. The diaphragm is positioned so that incoming rays are refracted from both the inner diverging surfaces and the outer converging surfaces in the same manner. As a result, anastigmatic distortions cancel each other out. Other distortions — especially spherical aberration — cannot be corrected. They can only be minimized by using extremely small apertures. Color correction is also impossible.

Von Hoegh then improved on this design by combining two single meniscus elements in such a way that the concave surface of each faced the diaphragm in the middle. The result was the symmetrical Hypergon. The Hypergon was produced by C.P. Goerz in Berlin until 1926. After that, Carl Zeiss Jena produced it until the Topogon was developed.

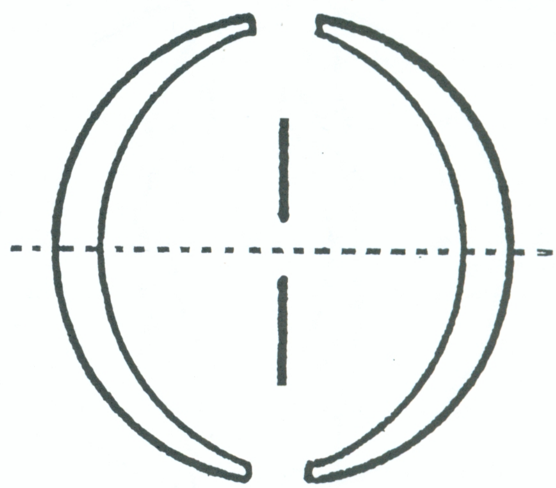
The Hypergon was not successfully challenged for almost three decades. Its field of view was 140 degrees, and it was well-corrected for astigmatism and distortion of the image plane. Nevertheless, the lens had to be stopped down to f22 for focusing and to f32 for exposures, since its lack of color correction and focus difference, because of spherical aberration, were of considerable magnitude.



The Goerz Hypergon, with its star-shaped "spinner" to even illumination from center to edges of film. Illustration is from the 1903 Goerz New York catalog. Lens could be ordered in six focal lengths ranging from 2 3/8" to 7 7/8".



Von Hoegh's meniscus.



Goerz Hypergon.

The 140 degree field of the Hypergon produced noticeable light loss at the edge of the image. To counteract this, a star-shaped diaphragm was mounted in front of the lens, and rotated by a hand-operated blower during part of the exposure. This produced an evenly graduated exposure from the center of the image to its edges.

Enter the Topogon

As commonly used film sizes became smaller with the passage of time, the performance of the Hypergon became less and less adequate. It can be assumed that during the 30 years of its supremacy as an ultra-wide-angle, there was continuous experimentation in the optical industry to increase the performance and efficiency of this lens.

In the early 1930s, Carl Zeiss Jena made a remarkable step forward in solving the difficult problem of combining increased light transmission with a wide field of view. This was the Topogon — developed by Dr. R. Richter (1886-1956) and awarded German Patent Number 636167 in 1933; US Patent Number 2031792 in 1936.

The Topogon is composed of four meniscus lenses, each with its concave surface facing the diaphragm. The two outer elements are made of nD 1.62 glass with minimal dispersion. They have a light-converging effect. The two inner elements are made of nD 1.72 glass which has less refracting effect but correspondingly higher dispersion.

This design keeps the relationship of the radii to the focal length relatively flat, and has a positive effect on flatness of field. Moreover, the varying dispersive qualities of the glass used result in improved chromatic correction. The important criteria of anastigmatic flatness and freedom from distortion are almost totally met by this design. Fall-off in illumination at the edges of the field is within tolerable limits. To correct it completely, a compensating plate graduated in density from center to edges can be mounted in front of the lens.

Production costs of the Topogon were high. The radius of the lens was so short that the grinding carrier had to be very small. The number of pieces that could be produced was limited. Moreover, the nearly hemispherical shape of these highly curved meniscuses made grinding very time-consuming, particularly when close tolerances were specified. The process is comparable to the production of high-quality microscope optics, as an examination of the 25mm f4 Topogon in a Contax mount will show.

Topogon Versions

The Topogon described above had an aperture of f6.3, and a focal length of 100mm. Since its relative speed was adequate for short exposures from a fast-flying plane, it was originally dedicated to aerial photography. With its large field of view, broad areas could now be captured from relatively low altitudes. With 18x18cm film,

10cm f10 Topogon has 95 degree angle of view.

its useable angle of view was nearly 100 degrees. It saved both material and time. And the design laid the foundation for further developments around the world.

Worth noting is the fact that this Topogon was not exactly symmetrical. Later, greater freedom from distortion was achieved by making the arrangement fully symmetrical, and encasing the entire system within two plane glass plates.

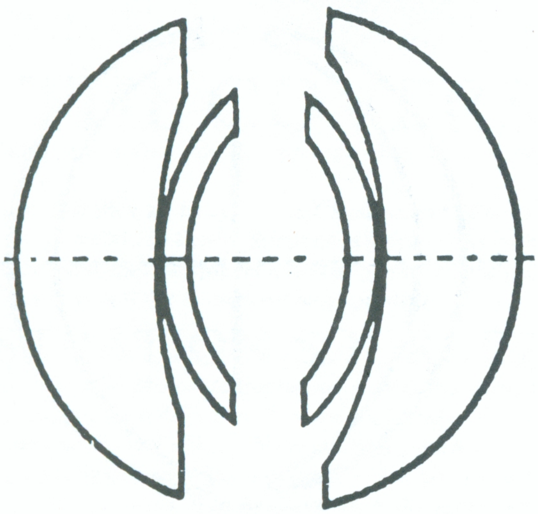
Another version of the Topogon had an aperture of f6.3 and a focal length of 55mm. This was used in the Zeiss phototheodolite "TAL", produced by the Zeiss Aerotopograph Company. To achieve better correction in this instrument, a plane plate was installed at the focal plane. This device also found applications in photogrammetry.

Other versions of the Topogon designed for photogrammetry were a 100mm f10 and a 115mm f10, both with a 95 degree angle of view. In addition, there was also an 80mm f6.3.

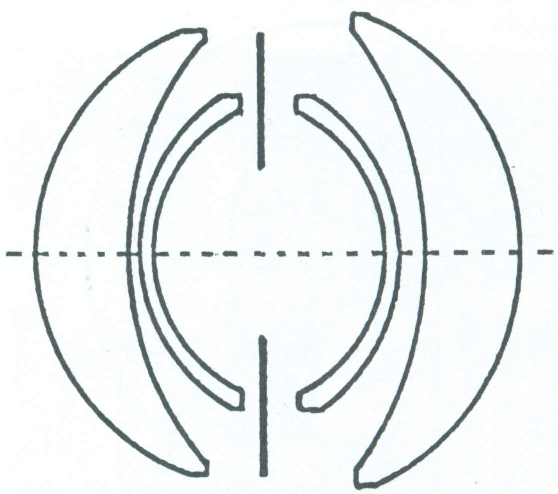
Even though it was built only in small numbers, the most widely known and used Topogon was the 25mm f4 for use on the Contax. This has an 82 degree angle of view.

Similar to this Topogon is the Orion 28mm f6, manufactured around 1960 in the USSR for the Zorki and Kiev cameras. It is also composed of four meniscus elements which are arranged symmetrically with their concave surfaces facing the diaphragm. Despite its large angle of view (75 degrees), it has resolving power. Drop-off in light intensity towards the edges of the image plane is also negligible.

A final version of the Topogon was designed in 1960 to be used on an undeveloped 6x9cm camera like the Linhof Technika. This lens was a 60mm f5.6 with an 82 degree angle of view. It was never put into production.



The Topogon.



B&L Metrogon.

A trio of Topogons. Top left: postwar uncoupled 25mm f4 for Contax, T-coated with breechblock (only Contax lens with this feature). Top right: prewar (1939) uncoupled 25mm f4.5 Contax. Bottom: wartime (1941) T-coated 13mm f3.5 for Movikon 16mm movie camera.

Topogon Descendants

In 1941, Dr. Richter designed a derivative of the Topogon called the Pleon. This is a 7.5cm f8 lens. In effect, it is a Topogon with a dispersing front element which increases the back focal length —the distance between lens and film plane. The dispersing front group and the associated disturbance of symmetry produce great distortion in this lens, which can only be corrected with special anti-distortion devices. Richter's Planigon is also related to the Topogon.

An interesting American derivative is the Metrogon, manufactured by Bausch & Lomb under US Patent Number 2325275. Although it consists of five individual meniscus elements, its relationship to the Topogon is unmistakeable.

The furthest development of lenses related to the Topogon are the ultra-wide Pleogon (designed in 1955 by Richter and Koch) and S-Pleogon (1968, by Roos and Winzer). Both these lenses are products of Carl Zeiss Oberkochen. Their kinship with the Topogon can be clearly seen in the middle group of elements with its two external groups of diffusing elements. The optical performance of the S-Pleogon is astounding. An 85mm f4, it has an angle of view of 125 degrees, and can cover a film size of 23x23cm. With nine elements, it is costly to produce, and requires extremely precise manufacturing and mounting. Both the Pleogon and S-Pleogon were developed exclusively for aerial photography.

Portions of the Topogon have appeared in the construction of other lenses. For example, the rear group of the Biometar 80mm f2.8 can be easily recognized as the rear group of the Topogon.

This list of Topogon descendants cannot be complete, since all the documents concerning them are unavailable. But it is evident that the possibilities of this design have been widely exploited. Equally evident is the fact that wide-scale development or applications no longer seemed feasible after the late 1960s.

One reason for the arrested development of the Topogon can be found in the increasing domination of the SLR camera. Since the distance between the Topogon's rear element and the film plane is so short, the lens would interfere with the rise and fall of the mirror in an SLR.

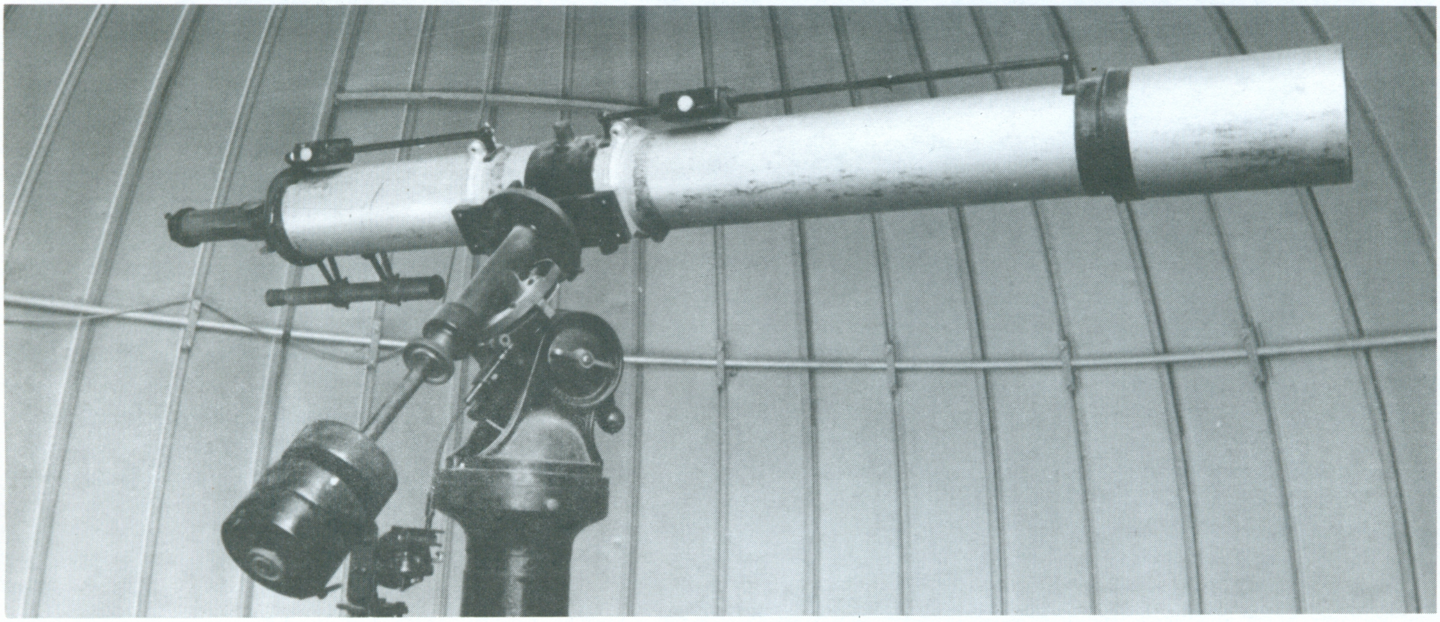
Modern wide-angle lenses employ powerful dispersing front groups which effectively increase the distance between rear element and film plane. They also provide considerably greater illumination at the edges of the film plane than does the Topogon. For example, the 25mm f4 Flektogon transmits 3 times as much light as does the Topogon at its widest field of view. Such designs have largely eliminated the problem of insufficient illumination at the edges of the field.

Nevertheless, the Topogon remains one of the most famous and long-lived designs in the history of photographic optics. The ingenuity of its design is in no way diminished by the fact that new times demand new solutions.

This article was translated from the original German by member Claus Stegmann, with additional technical editorial assistance from honorary member Edward Kaprelian.

ZEISS TELESCOPE AT AUGUSTANA COLLEGE

Nicholas Grossman, Rockville, Maryland



Number 9244 on its Clark equatorial mount.

In the Spring 1981 issue of the Journal this author listed the few large Zeiss telescopes that are open to the public in the United States. The largest, a 300mm refractor, is housed in the Griffith Observatory in Los Angeles. There is also a 250mm refractor at the Franklin Institute in Philadelphia.

The information on these two instruments was correct. But details about the Zeiss telescope at the Carl Gamble Observatory, in Rock Island, Illinois were based on secondhand information, and were incomplete and largely incorrect. Recently I had the opportunity to visit the Carl Gamble Observatory and I now am able to provide factual information for the record.

The Telescope Itself

Carl Zeiss, Jena refractor Number 9244, Carl Zeiss, Jena 130mm diameter telescope objective Number 11343E, f=194cm. Finder telescope 10x, Number 7138, objective 30mm diameter (number not available), focal length 30cm. A Zeiss wooden accessory storage case for the slide-in sleeve contains 25mm, 12.5mm, 7mm, 5mm, and 4mm oculars, a 50mm screw-in ocular, 3 filters, a Zenith prism Number 10308, an Abbe erecting prism Number 7049, and a revolving turret ocular holder Number 7208. The telescope is attached to a Clark equatorial mount.

The Telescope's History

Dr. (Hon.C.) Carl H. Gamble, an enthusiastic amateur astronomer who worked for the John Deere Company in Moline, Illinois, acquired the telescope secondhand, for about $275 in 1929. In 1938, Dr. Gamble purchased an Alvin Clark motor-driven equatorial mount from Mr. Hamilton Maze and placed the Zeiss refractor on this Clark mount. In 1941, the telescope was moved to Dr. Gamble's newly built "Sky Ridge Observatory", near Moline, Illinois.

Dr. Gamble passed away in January 1958, and bequeathed the telescope to Augustana College. Due to the construction of a new highway at "Sky Ridge", the telescope had to be removed in 1966. In 1967, ground was broken at Augustana College for a new building to house the John Deere Planetarium. It included an observatory to honor the memory of Carl H. Gamble. Funds were provided by the John Deere Company and by private donors. In 1968, these new facilities were opened to the public.

Observatory at Augustana that houses the telescope.

WWII GERMAN MANUFACTURERS' CODES

Some of the optical equipment used by the German armed forces in WWII was of course ordinary civilian equipment carrying the maker's name and simply marked with the branch of the service to which it was issued. Many Leica and Contax cameras used by the military bear markings which clearly identify them as property of one or another branch of the armed forces: the Navy, the Army, etc. Robot cameras marked "Luftwaffe Eigentum" (Property of the Air Force) are quite common.

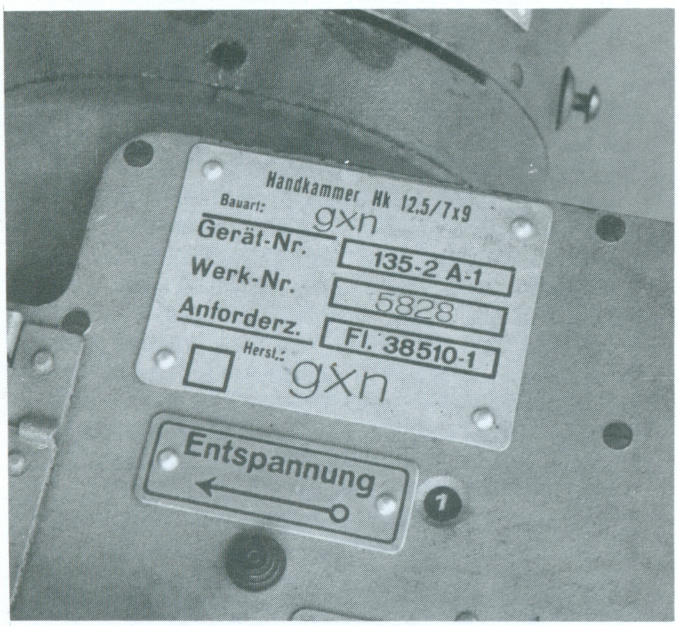
But equipment designed specially for military use often carries no manufacturer's name. Instead, the manufacturer is identified by a three-letter alphabetic code. These codes are found on almost all specifically military optical equipment: rangefinders, periscopes, aerial cameras, binoculars made to military specifications and the like. (If a specific item was made by two or more manufacturers, the products of each manufacturer would be identified by differing codes.)

Coding was not confined to optical equipment. Such mundane equipment as barracks furniture supplied to the military was also manufacturer-coded.

Here is a list of some of the codes which appear on optical equipment. It was gathered from several different sources. While incomplete, it should be helpful in identifying equipment not marked with a manfacturer's name.

Where a period appeared after the code, it was intentional — and was added to prevent misreading of the code when seen upside down.

beh	Ernst Leitz, Wetzlar.
bek	Hensoldt Werk, Herborn.
blc	Carl Zeiss, Jena.
bmh	K. Jirasek, Prague.
bmj	Hensoldt, Wetzlar.
bmt	Steinheil, Munich.
bpd.	Goerz, Vienna.
bvf	Reichert, Vienna.
bxx.	Askania, Berlin.
cag	Swarovski, Wattens, Austria.
cau	Kodak-Nagel, Stuttgart.
ccx	Hugo Meyer, Goerlitz.
crn	Friedrichs & Co., Hamburg.
cro	R. Fuess, Berlin.
ddx.	Voigtlaender, Braunschweig.
dpv	Zeiss Ikon, Dresden.
dpw	Zeiss Ikon (Goerz), Berlin.
dpx.	Zeiss Ikon (Contessa), Stuttgart.
dzl	Oigee, Berlin.
eaw	R. Winkel, Goettingen.
eso	Rodenstock, Munich.
esu	Steinheil, Munich.
eug	O.P.W. (a Zeiss affiliate), Warsaw.
fwq	Saalfelder G.m.b.H., Saalfeld.
fwr	Saalfeld G.m.b.H., Saalfeld.
gug	Hungarian Optical Werk, Budapest.
gxn	Fritz Volk, Berlin.
hwt	Ihagee/Steenbergen, Dresden.
jon	Voigtlaender-Gevaert, Berlin.
jux	Nedinsco (a Zeiss affiliate), Venlo, The Netherlands.
kqc	Joseph Schneider, Goettingen.
lfm	Nederlandsche Maschinefabriek Artillerie Inrichtungen, Delft.
lfn	Reflekta (C. Richter), Tharandt.
lmq	Carl Zeiss, Jena (for equipment from some foreign affiliates of the firm).
lwg	Osterode G.m.b.H., Freiheit bei Osterode.
rln	Carl Zeiss, Jena.



"gxn" code on plate of 1941 70mm aerial hand camera identifies manufacturer as Fritz Volk, Berlin. The lens, a 125mm f2, bears no code mark, however. It is directly marked as a Xenon from Schneider in Goettingen.

6x30 military monocular from Carl Zeiss Jena. Body is dark green-gray. All markings except the triangle are black enamel. The triangle is light blue, and its significance is unknown.

MORE ON THE GREAT CONTAX MYSTERY

Samuel Sherman, Old Bridge, New Jersey

With the opening of the Eastern bloc nations through the process of glasnost, new pages will be written in photographic history and old ones uncovered. Looming large on the horizon is the possible reunification of Zeiss East and Zeiss West along with German reunification itself. Collectors and historians of East German and Soviet photographic equipment have long been regarded as offbeat hobbyists to say the least. Much of this equipment has unfairly been categorized as inferior, when in reality the Eastern bloc has produced much fine optical equipment. For political and other reasons, the history of this equipment has been cloaked in secrecy of a kind which evokes the most complex of both real and fictional spy stories.

Until recently, the Contax II and III cameras were generally thought to have been produced in the years 1936-40. For many years the Modern Photography "Camera Buying Guide" stuck by those dates. But the existence of the "No-Name" Contax, of Contax-type Kiev cameras, and the sale of "new" Contax II and III cameras after 1945 made it clear that 1940 was not the last date of production for the Contax II and III. Nevertheless, there were those who attempted to deny the existence of these more recently made products, having their own axes to grind. In the March and April 1979 issues of "Photographica," the publication of The Photographic Historical Society of New York, this writer brought many of these events to light in a two-part speculation entitled "The Great Contax Mystery." The following excerpts are from those articles:

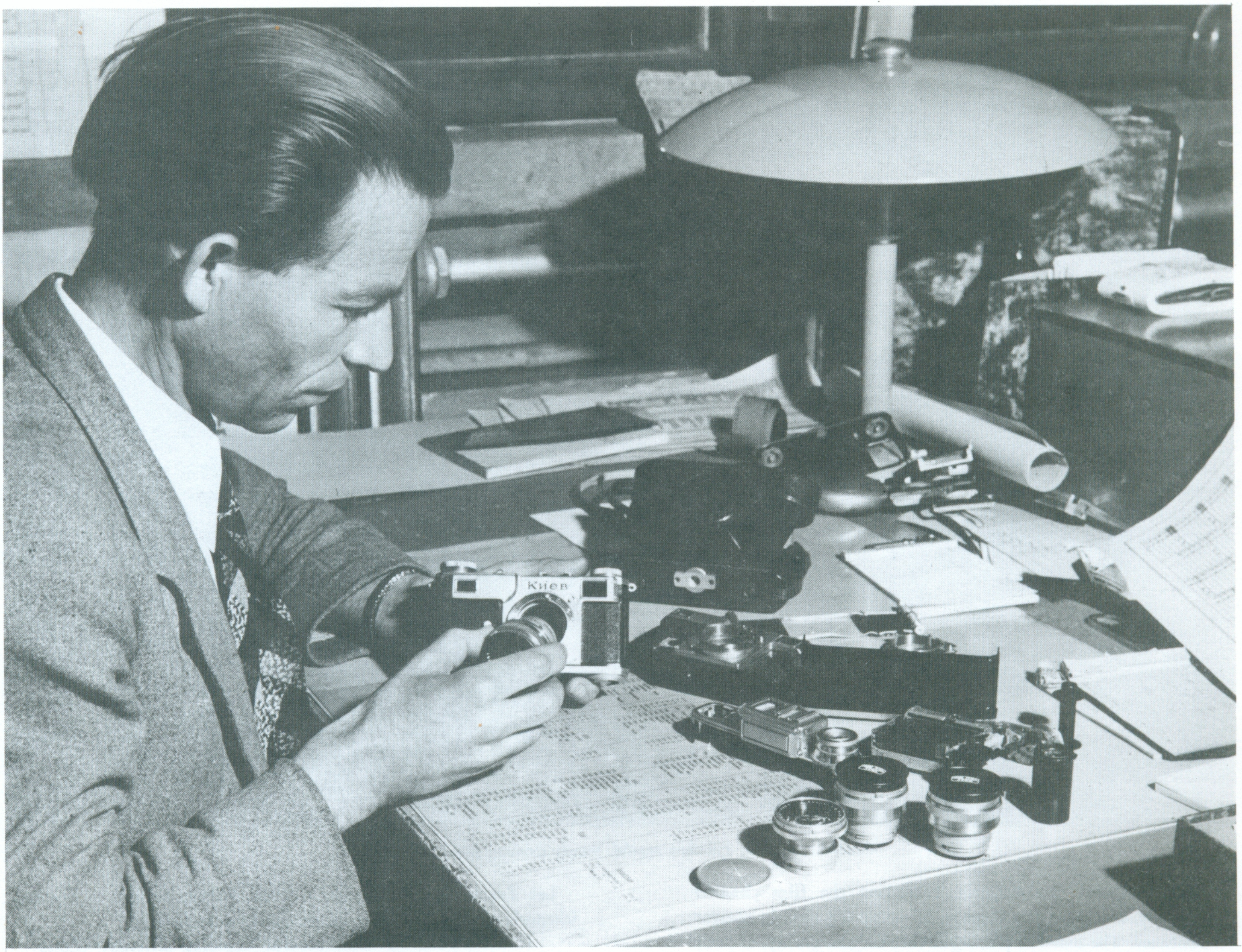
> Legend has it that after the occupation of Dresden by Russian troops (1945), the entire manufacturing facilities for Contax II cameras were crated and shipped to Kiev in Russia where the Kiev (Contax-type) cameras are reportedly made to this day (1979). I feel that Kiev (Contax) cameras were always made in East Germany with only some part of their assembly done in Russia.
>
> I had an expert camera technician disassemble a No-Name Contax (Kiev-type). This man has an extensive background in East German cameras of the postwar period. His knowledge extends to manufacturing and assembly techniques. His opinion was that the "No-Name" Contax was made in East Germany, not Russia.
>
> To further confirm my theory about the Kiev being an East German camera, I would also have to prove that the majority of the technicians, tooling and manufacturing equipment for the Contax II did not go to Russia after the 1945 occupation of Dresden. In this regard I submit the following story. In the January 1951 issue of Popular Photography, Geo. Levine's Sons Co. of Boston, Mass. ran a full page ad. Part of it states:
>
> "Exclusive Scoop — Contax II Back Again. The world's most famous 35mm Camera, now with internal synchronization, plus all its original great features. CONTAX II, coupled rangefinder, etc., internal built-in flash synchro, f2 factory-coated lens in latest lightweight rigid mount...$295. Takes all pre-war Contax II lenses and accessories; also Contax IIA lenses."

From "Popular Photography", January, 1951: portion of retail ad from Geo. Levine's Sons Co. in Boston.

> This was not a Contax IIA and the man who wrote this ad accurately described what he was selling: a NEW Contax II in 1951. The man who ran that ad and sold those cameras is Sam Levine. He wrote to me on Christmas day 1978:
>
> "We bought all those Zeiss cameras from Zeiss Co. on Fifth Ave., N.Y.C. which they imported from Zeiss in Germany, East Zone, where they were still being made under the auspices of the Russians. Your theory is correct — Zeiss in Eastern Germany continued to make their cameras."
>
> Perhaps, based on the information and theories presented here, all of the postwar Contax II cameras including Kiev's, "No-Names" and Jena models are all the same in various versions of minor evolution...with the major part of their manufacture taking place in the lens city of Jena.
>
> In the early 1960s, the Kiev cameras were modernized with bottom locks and tripod socket to imitate the Western Contax IIA and IIIA models. The "No-Name" Contaxes are these Kiev models, with usually better finish and better quality control. The date on my "No-Name" case strap is 1963.
>
> Mr. Noak of Carl Zeiss Inc., New York informed me that the prewar Contax II and III models were indeed made again in East Germany after 1945.
>
> Fellow PHSHY member Leslie Oswald, formerly of Hungary, told me the following: Years ago in Europe he learned that Russian forces had taken equipment to manufacture Contax cameras back to Russia. They failed in their attempt to properly make the cameras and returned the equipment to East Germany where manufacture resumed successfully.

The following is from a third part of this story which was never published, dated November 5, 1979.

> As to Russians "never" taking machinery to Kiev and "never"



Technician works on a Kiev. Photo was taken in March or April of 1947 at prewar Zeiss Ikon factory in Jena. The photographer was Henry Ries, then a staff photographer for the New York Times in Europe, now living in New York.

making Kiev Contaxes there — I feel I have been too strong on that point too. The answer is not a simple one — ie. all Kievs were made in Kiev — or all Kievs were made in East Germany. I feel a more intricate relationship is involved.

James E. Cornwall, a noted photographic historian living in Germany, related this story to me:

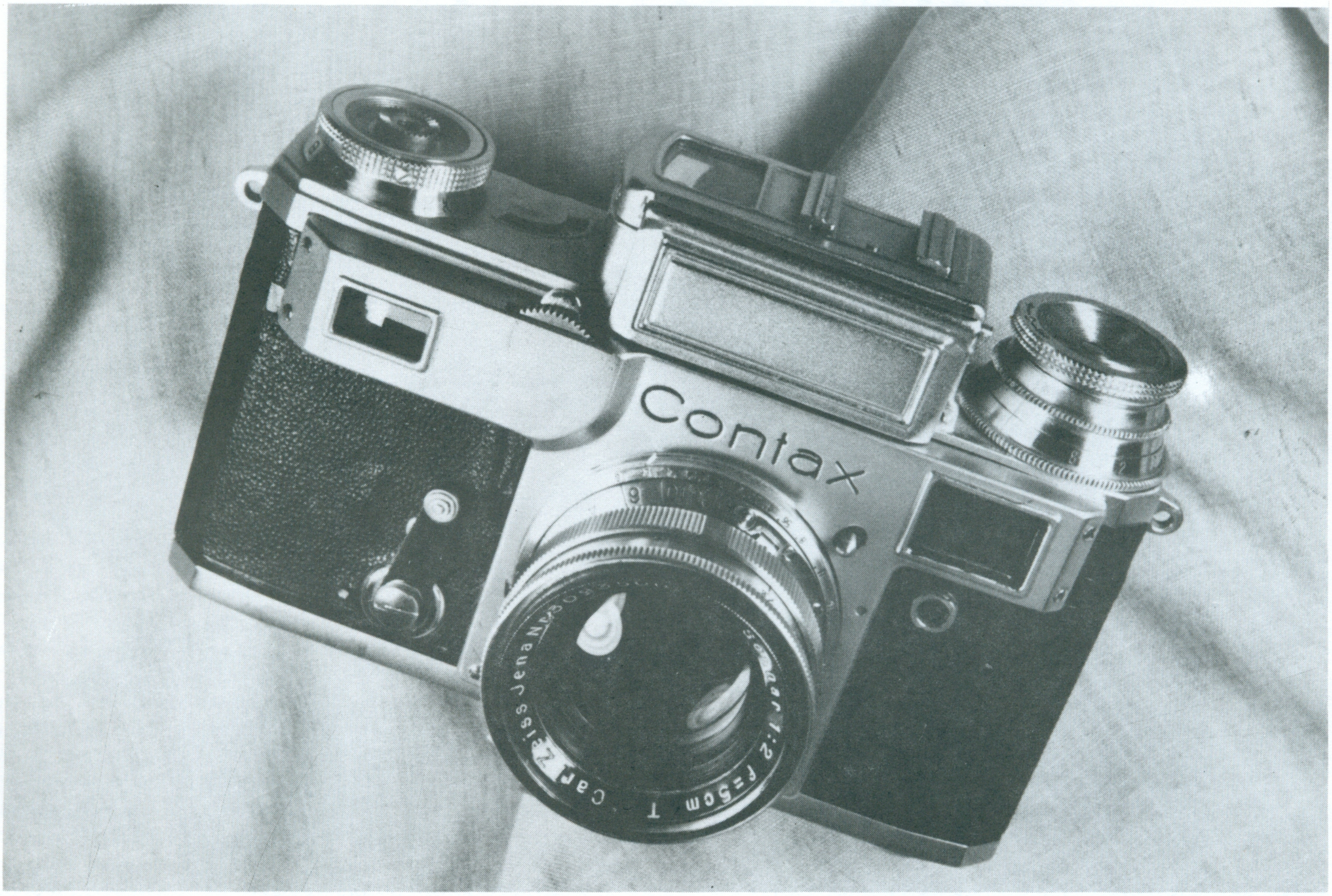
"In 1945 Russian troops entered Dresden where Zeiss made the Contax cameras. They came to one of the Zeiss factories to remove manufacturing equipment. The Zeiss workers generally didn't wish to cooperate with this removal. The factory had three large elevators. Workers locked one of the elevators as if broken after having removed key equipment and hidden it in the building's basement. The Russian troops used the two other elevators in their operation and took the desired equipment. They were unaware of the fact that they didn't get all of the equipment. The troops put explosive devices in the two operating elevators and destroyed them. Once the Russian troops left Dresden, the remaining Zeiss workers used the third elevator to return their manufacturing equipment upstairs where the enormous task ahead was resuming any kind of manufacturing operations. The Russians took the tooling they had to Kiev along with some former Zeiss employees. The Zeiss workers sabotaged the equipment the Russians took so that producing cameras with this equipment was near impossible."

It seems obvious that the Dresden Zeiss workers got their machinery working and probably had a supply of prewar and wartime Contax parts to work with. Using a combination of these old parts and new ones, they assembled the earliest postwar East German Contax II and III cameras.

From extensive research I have concluded that the Contax cameras with higher prefix serial numbers are later cameras. I have examined "M" models and feel they are late wartime and postwar, equipped with "T" coated Carl Zeiss Jena lenses as their original equipment. I own the latest model I have ever seen of this type: a Contax II with a high "O" prefix serial number and collapsible "T" coated Zeiss Jena f2 Sonnar. The lens seems to be made of prewar and postwar lens parts.

Many of the post-1945 Contaxes sneaked into the postwar camera market where quality cameras were scarce and worth big money. Ads in 1948 U.S. consumer photographic magazines offer many "as new" Contaxes in original boxes and with "T" coated lenses. Many assumed these were not new cameras (of inferior quality) but just original prewar Zeiss items. Those dealers that knew the truth may have concealed it since the quality of these items was not as good as prewar Zeiss quality.

The "O" Contax II that I have is not as well made as the



1955 Contax III synchro model, newly arrived from the USSR.

earlier cameras. Some parts, including the film channel assembly, are more like those in Kiev models than in prewar Contaxes. The exterior plating is very bright, grainy, of poor quality and immediately stands apart from the finish on the prewar cameras.

Perhaps after the initial hostility between the Russians and the East German Zeiss people, these differences were worked out. The cooperation between the East German lens firm of Carl Zeiss Jena and Russia is well-known today. The manufacturers of Kievs and East German Contaxes might also have worked together in various ways. This may have taken place in the early years until some point in the 1960s — perhaps when all manufacture of Contax-Kiev types might have shifted solely to the USSR.

Isaak Maizenberg, formerly a top camera technician at the Kiev camera works and author of a detailed repair text on Kiev (Contax) cameras wrote to me as follows:

"After the war, the USSR removed these (Dresden) plants partly to Kiev, where they produced Contax II and Contax III but named them Kiev II and Kiev III.

Later when the camera had been improved with a synchrocontact, the names were changed to Kiev IIA and Kiev IIIA.

Together with the moving of plants to Kiev, they moved some engineers, but they returned back to Germany in a very short time and the Kiev camera was put together from the parts which were made in Kiev.

About the No-name cameras: I never saw them in Russia, but I am sure that they were made in Russia to be sold in foreign countries."

Les Frankham of Leicester Camera Repair Service in England, formerly with Zeiss Ikon, wrote to me as follows:

"There were no manufactured cameras officially (Zeiss) post 1945, the same as the prewar models, it's a long story.

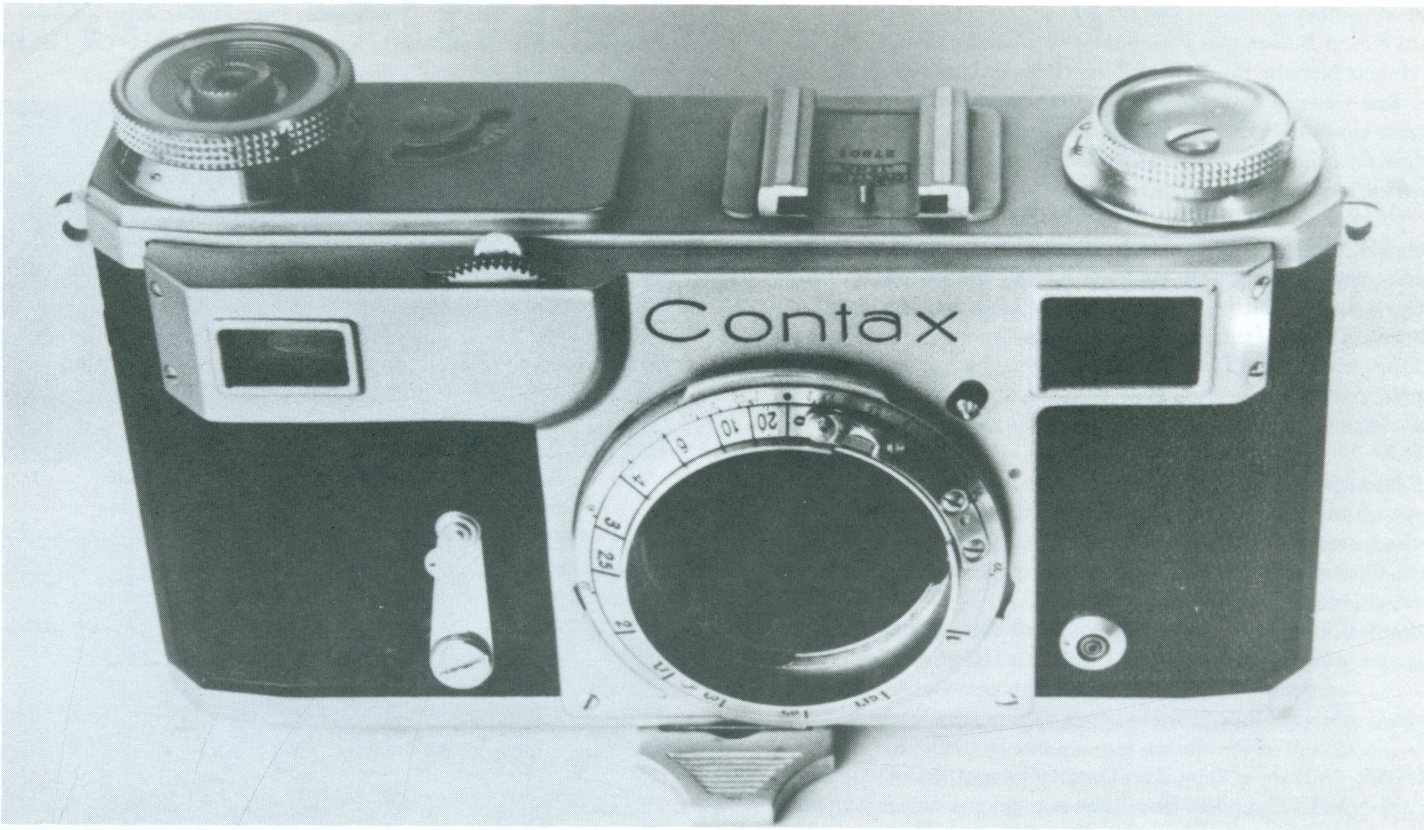
There were many escapes involved around 1947/48...we even hold some original blue prints dated 1946/47 when the Contax re-started and original parts saved from enemy action."

His letter was not specific, but it indicated he had information which for political reasons he didn't want to write about in 1979.

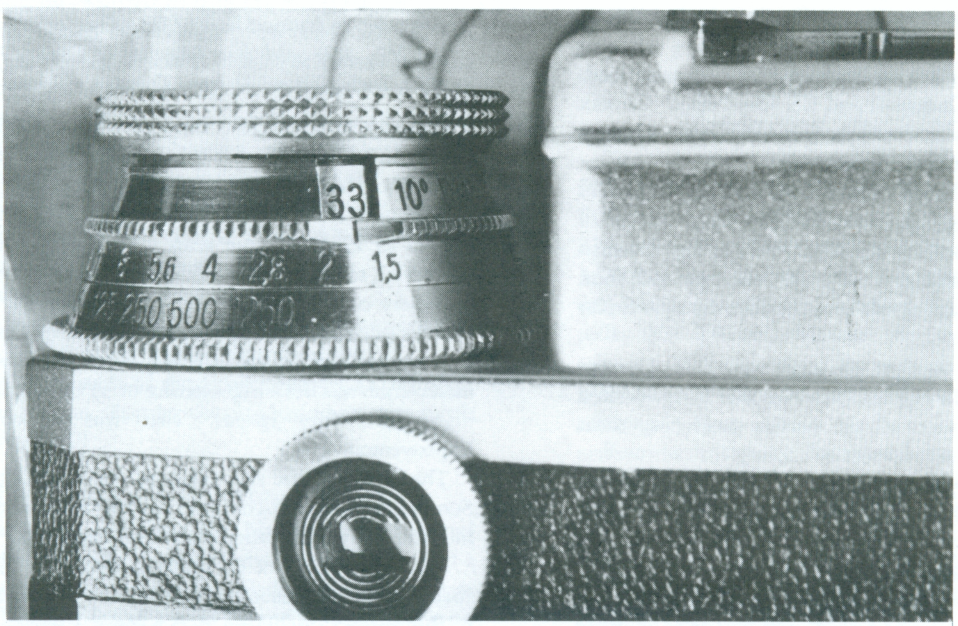
The post-1945 history of the Contax II and III is a most fascinating one with many hints of intrigue that are not easily analyzed. Behind this was the fight between the East (USSR) and West (US, West German) over the rights to the Zeiss name, patents and related products. Its seems obvious that after 1945 persons both known and unknown may have been manufacturing some form of Zeiss products including Contax II and III cameras. The products were in demand and could be easily turned into hard currency. Exactly what these products were and who made them is still a mystery. After the war, the American company Carl Zeiss Inc. sold the products made by Zeiss (West) in the United States. How then did they sell Contaxes from East Germany?

Siegfried Kessler, former President of Carl Zeiss Inc. (US), spoke at the November 1989 Zeiss Historica meeting in Secaucus, New Jersey. After his talk he explained to me that as an American company, Carl Zeiss Inc. could sell Eastern Zone cameras as well as its own cameras from the West, since it was not a division of the West Germany company.

While Carl Zeiss Inc. was selling East German Contaxes in the US in the late 1940s and early 1950s, they did not advertise that they were



Contax II from Jena. Synchro contact is probably a later addition, not factory original. (Randall Scheid photo.)



Highest film speed on 1955 Contax III is 33 DIN.

doing so. In fact, these cameras competed with the official Contax IIa, which they openly sold in 1951. At the same time, Geo. Levine's Sons Co. in Boston was selling the East German Contax II.

Hubert Nerwin, formerly of Zeiss (Dresden), told me he knew of the East German Contaxes in the 1950s, when they were sold in camera stores in Rochester, New York. Examining one, he felt it was below the original (1930s) Zeiss standards and that the finish on the exterior metal parts was generally poor.

Speaking of the Russians removing the tooling from Zeiss in Dresden, Nerwin told me a related story. It seems that a Russian soldier appropriated a camera from the factory for himself at that time. It was one of the rare Pentaprism SLR prototypes developed from the Contax II for use with its telephoto lenses. In 1948 that same soldier returned to Dresden and brought "his" camera back for repair, claiming it was no longer working properly. Nerwin's story ended there. Does that camera still exist today somewhere in the USSR?

Based on related history and various stories and research, I have come up with the following approximate timetable of production of various models of the Contax II and III in all its guises:

1936-40: Zeiss Ikon Dresden — production of official original models of the Contax II and III.

1936-65: Carl Zeiss Jena — production of chrome and aluminum mount lenses for the Contax II & III, prisms for internal rangefinder and related optical accessories.

1940-45: Zeiss Ikon Dresden — production of the Contax II and III for German military use — some in modified form.

1945-46: Workers at Zeiss Ikon Dresden factory produce Contax II and III models from prewar, wartime and newly made (poor-quality) parts. Zeiss Ikon logo on back has round "S" letters, not square as in earlier models. These cameras have "M" and "O" prefix serial numbers.

1947-49: Carl Zeiss Jena (optical factory) — production of the Jena Contax II (and possibly III) models. Production of the early KIEV II and III models.

1948-86: Carl Zeiss Jena — production of complete lenses, prisms for rangefinders and optical lens elements for insertion into Soviet lens mounts — for Kiev cameras (also speculation).

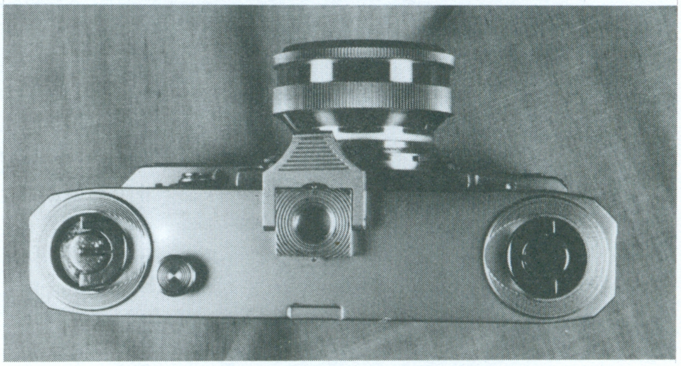
1948-86: Kiev Camera Works — production of Kiev (Contax) types, with many changes in specifications and modifications.

1950-65: Former Zeiss Ikon plant in Dresden (this is speculation). Production of the Contax II and III, "No-Name" Contax II, parts for Kievs and interaction with Kiev Camera Works on production of this camera.

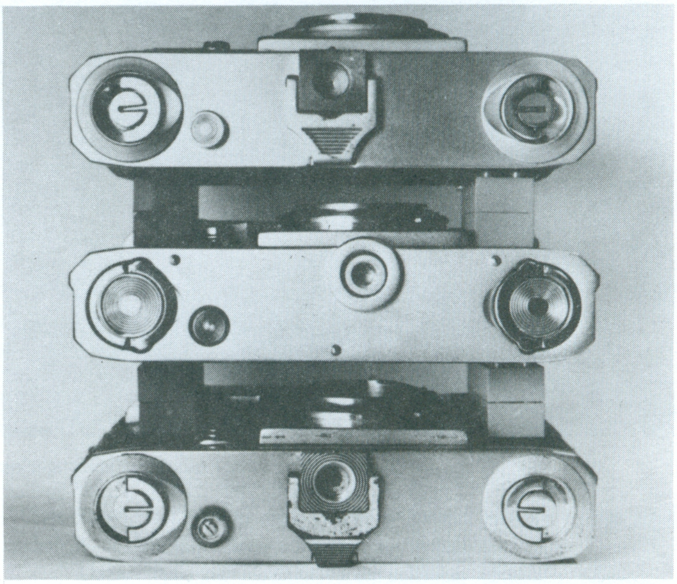
As with the much-revised black Contax I models, the Contax II and III continuously received numerous design changes, most of which were hidden from external inspection. Postwar East German production continued these changes: the solid-center balance foot, the smooth rewind button, flash-synch socket under the viewfinder window, etc.

These changes traveled straight through all East German Contaxes, Jena Contaxes, "No-Name" Contaxes and Kiev models, suggesting cooperation between all the parties producing these cameras. One story says that several sets of tooling for the cameras existed and that East German production continued at the same time as did Kiev factory production. This might account for the "No-Name" Contax.

From all reported observations of "No-Name" Contaxes, including my own, these were Kiev types with Contax IIa bottoms and serial numbers beginning with "63". This indicates 1963 production as per the Soviet serial number system. The cameras are of better quality than contemporary Kiev versions. They were sold new in the US with new West Zeiss Sonnar lenses — probably surplus from the discontinued IIa and IIIa. According to some reports, these cameras came equipped with new Zeiss Jena lenses. The cameras sold in the US were marked "USSR Occupied Germany". You had your choice: an East German Kiev without a nameplate, or a Soviet-made Kiev of better quality. The "USSR Occupied Germany" was a deception.



Base of 1955 Contax III. Note solid center balance foot and improved, smooth rewind button.



From top to bottom: base of Jena Contax (similar to 1955 Contax III), Kiev with base like that of Contax IIa, and original Zeiss Ikon Contax II from Dresden. (Randall Scheid photo.)

Recently, I obtained a Contax III from a Russian immigrant. This camera had an improved flash socket (more advanced than that on my 1954 Kiev) and the old bottom — a bottom unlike the changed bottom with thick grooves found on the 1956 Kiev. I would date this camera as 1955. It came with a Carl Zeiss Jena "T" coated rigid Sonnar f2, serial number 3093500. The camera has no serial number anywhere on the body. It is not a homemade hybrid of Kiev and Contax parts, but rather a complete factory model with Zeiss Ikon logo on the back. It shares Jena Contax and later Kiev features. The meter knob reaches a high setting of 33 DIN (the later the model, the higher the film speed). This was an ongoing Contax III improvement.

The lens is of the same style as the 1950 Carl Zeiss Jena rigid f2 Sonnar models, which came in dull aluminum mounts. But this mount is of high-quality chrome-plated brass.

Who made Contax III synchro models in 1955 remains open to speculation. The best of luck to fellow researchers who are interested in this subject, including Bob Barlow, Charles Barringer, Nicholas Grossman, Kurt Juettner, Hans-Juergen Kuc, Ivor Matanle, Bernd K. Otto, and Bob Pins. Doubtless it will be European Zeiss historians and collectors close to the changes in Eastern Europe who will go to the Eastern bloc countries and finally get all the facts of this story which have long been hidden.

NEW SHUTTER AND TAPES FOR A ZEISS MIROFLEX

Frank Paca, Alexandria, Virginia

During the summer of 1989, I acquired a Zeiss Ikon Miroflex B (9x12cm film size). The camera was fitted with a 165mm 4.5 Tessar and was generally in excellent condition. The shutter operated at all speeds (T,B, and 1/3 to 1/2000 second). However, time and air pollution had hardened and cracked the shutter cloth as often occurs in cameras this old. What follows is a description of the replacement of the shutter cloth as well as some unexpected problems with selection of a suitable replacement shutter tape.

Assumptions

In spite of the camera's 60 year age, it should be assumed that all of its mechanisms (rollers, gears, springs, levers, etc.) will be properly or nearly in adjustment if the cloth and tapes are replaced and the camera is cleaned and lubricated.

Reference Points

Prior to and during the process of taking the camera apart for repair, it is necessary to make notes on various reference points so that the camera can be properly reassembled. This applies to shutter speeds, shutter cam, mirror positions and other points. The shutter should be set at 1/2000 second. Two circles should be drawn and the position of the 2000 mark recorded on one circle when the shutter is unwound and on the other circle after the shutter is wound. Repeat for several other speeds such as 1/35, 1/5, T, etc. During the disassembly of the winding knob the shutter cam position should be similarly noted for 1/2000 second. Likewise, the mirror return knob should be examined and the position of the arrow in the unwound (mirror up) and wound (mirror down) positions should be recorded.

Access to the Shutter

The following steps are required to take the camera apart:

- Remove screws as follows (See Figure 1): 4 screws — one at each corner of geartrain cover, 1 screw in mirror return knob, 2 screws in camera body top front and 2 in bottom front, and 2 screws on the opposite end of the camera from the gear box. (Do not remove the 2 screws on the bottom left of the back side.)
- Remove 2 screws on the shutter index plate of the winding knob.
- Reference the cam screws and remove them, the cam and the coiled spring under the cam.
- Remove the shutter release retainer and button.
- Separate the shutter cover by sliding it away from the geartrain with a twisting action to get around the tripod socket.
- Place a tape over both ends of the closing shutter axial pin in order to prevent it from slipping out and losing its gear tooth reference (See Figure 2).

Dr. Nagel's Shutter

While at Contessa-Nettel and Zeiss, Dr. Nagel designed several shutters similar to this one. The closing shutter is wound around a roller on the right side. Its speed is controlled by the geartrain as shown in Figure 2. The opening shutter is wound around a roller on the left. The opening shutter in the mid-exposure position is shown in Figure 3. Notice that each half of the shutter does not have its own tape as do most other focal plane shutters. Only the closing shutter has a tape attached to it. The opening shutter has no tape of its own. It operates in a "piggy back" fashion on the tape of the closing shutter.

To provide the energy required to operate the shutter, springs are located in the opening shutter roller and in the spools for each of the tapes of the closing shutter. This method of operation imposes some unusual demands on the properties of the tapes as can be illustrated by one cycle of exposure at a middle (1/35 second) speed.

- When the shutter is unwound it is as shown in Figure 2. The shutter tape has slid through the sliding junction and there is no shutter opening.
- During winding, the entire shutter moves to the right. The friction in the sliding junction is sufficient to cause the opening shutter to follow along without allowing the shutter to open.
- When the opening shutter reaches the right side its metal edge stops it from continuing to follow the closing shutter. However, the closing shutter and its tapes continue to move until a slit opening is formed for the 1/35 second speed by wrapping around the closing roller.
- When the shutter is released the entire shutter (opening, closing and tapes) moves as a single unit and allows the 1/35 second slit to expose the film.
- When the opening shutter reaches the left side, the shutter is still open. The tapes must quickly slide through the sliding joint and close the shutter.

Thus, the shutter tapes must possess a careful balance between surface friction, flexibility, strength, and resistance to wear and abrasion in order to have sufficient friction during the slow winding phase and sufficient flexibility and durability at the sudden end of the exposure.

Dr. Nagel's design reduced some of the severe demands on the tapes by progressively changing both the curtain speed and slit width in the high-speed, mid-speed, and low-speed ranges. At 1/2000 second, the shutter has the narrowest slit and the least retardation from the geartrain. At 1/3 second, the shutter has a wide slit and the most retardation from the geartrain.

Replacing the Cloth and Tapes

The closing shutter and the tapes should be removed and replaced first. Release the shutter and be sure that it is fully unwound (as in Figure 2), then mark and record the exact location of the metal edge. This reference point is needed to establish the correct slit width for 1/2000 second. Measure the exact width of the cloth (about 140mm) and estimate the length including the portion wrapped around the roller (also 140mm). Measure the thickness of the shutter material (about 0.010 inch). Note: the ends of the tapes must be secured at all times so that they do not get loose and lose the spring tension reference.

Remove the closing shutter and save the metal strip. Open it with a knife blade so that it can be reused. The shutter cloth is ripped to get the correct width. Make cuts at 140mm and rip two edges. Then use a right angle to cut the shutter so that the edges of both halves (opening and closing) will be parallel. Clean the roller, rotate it to the unwound position and glue the shutter with contact cement. Be sure that the metal edge exactly matches the position of the original shutter. The shutter tapes must then be joined to the closing shutter.

Tape Selection

Finding the proper tape proved to be a difficult task. I did not know anyone with a knowledge of textiles who could identify the

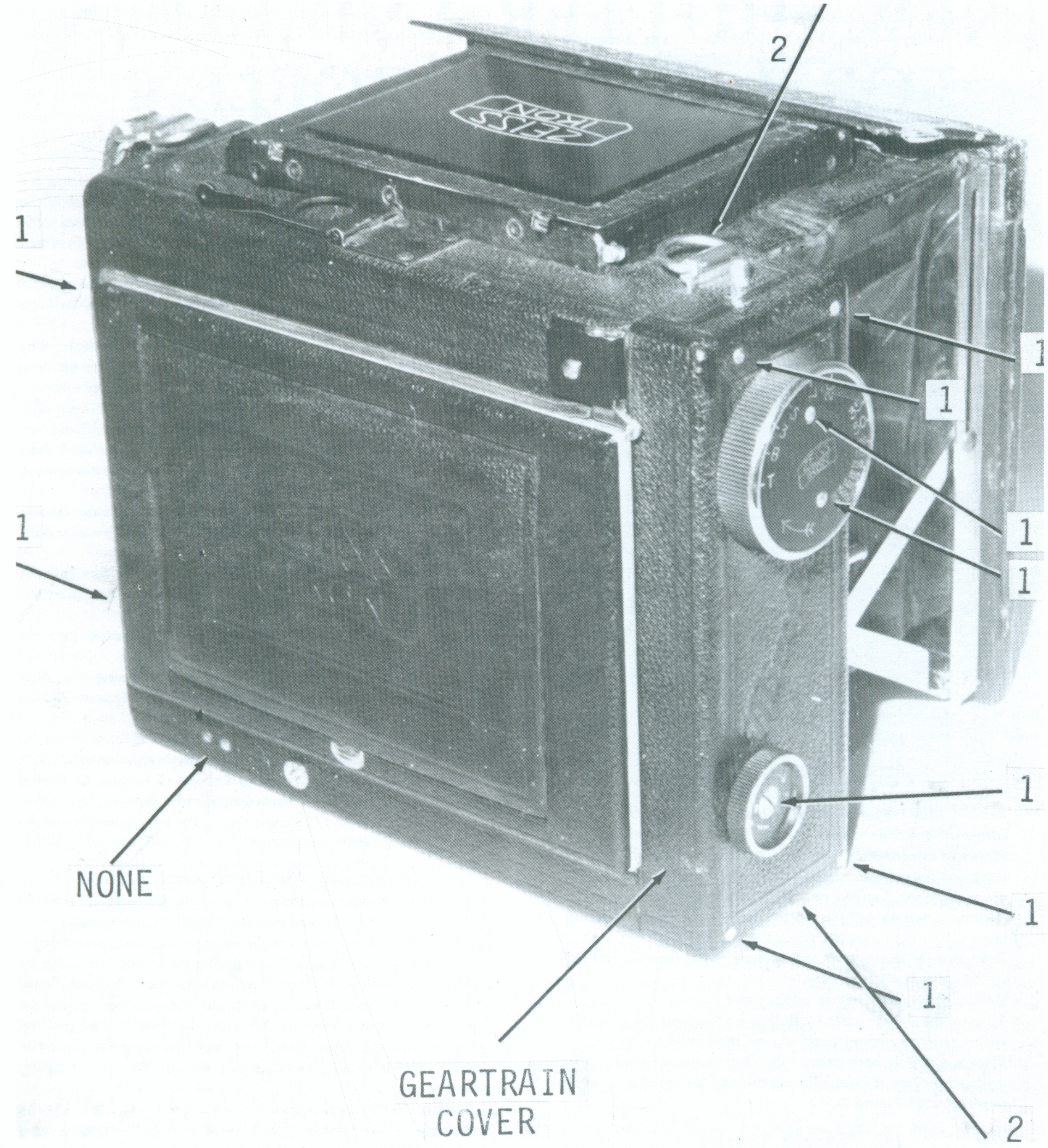


Figure 1. Access to the Miroflex for repairs.

tape material. The tape is a soft flexible cloth about 0.20 inches (5mm) wide and about 0.008 inches thick.

My first attempt at repair involved the use of a strong synthetic tape which was 0.21 inches wide and 0.006 inches thick. It looked good, but the wear due to the sliding of the tape through the junction quickly caused failure of the tape.

I then visited several fabric shops and bought six more samples of tapes which appeared to be about the right width and thickness. A pretest was given to each one. A knife blade was placed in a vise with the back (dull side) up. Samples of tapes were rapidly pulled back and forth up to 50 times and any wear was noted. Many of the tapes rapidly deteriorated. Based upon this, I selected a white cotton tape. It is 0.215 inches wide, 0.009 inches thick and is known as twill tape.

Installing the Tape

The new tapes were installed on each side of the closing shutter. The tape passes through the end of the metal edge of the closing shutter and is held by strong adhesive (contact cement) to the reverse

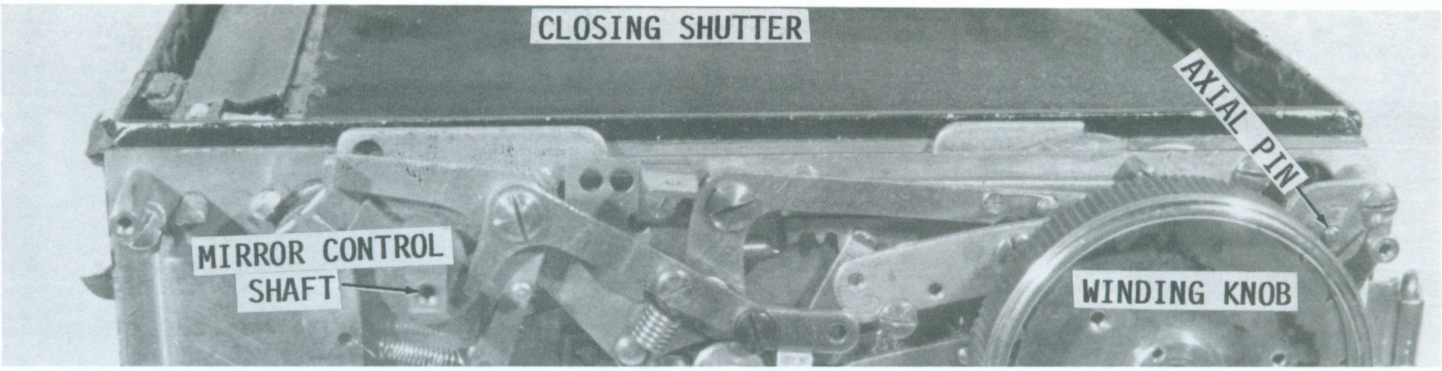


Figure 2. Miroflex shutter and geartrain exposed.

side. The rivet at the end of the metal edge is resecured. The length of the tape should be determined by pulling it from its spool and measuring it (about 275mm).

The new tape must be installed without letting the spool spin free and losing its reference tension. The tape must pass through the sliding junction as shown in Figure 3. It comes from the bottom, goes over a bar and then down again. The end of the tape is then secured to the spool by sliding a small loop under a bar or pin in the spool, inserting a pin in the loop, and then pulling the tape until it is secure as shown in Figure 4.

The last item to be installed is the opening shutter. Measure the exact width (about 126mm) and determine the length (about 140mm); then tear and cut the cloth as before. Be sure that the outer edge is exactly parallel to the edge of the closing shutter.

When the opening shutter is being removed from the roller, first remove one end and glue a length of tape material to the roller. Then, if the roller gets loose and spins free, you will still know the reference tension. Glue the closing shutter in place with contact cement and glue the other end to the underside of its metal edge. Be sure that the tapes on both sides, which pass through the sliding junction, are straight. This completes the repair. The camera is put back together in reverse order.

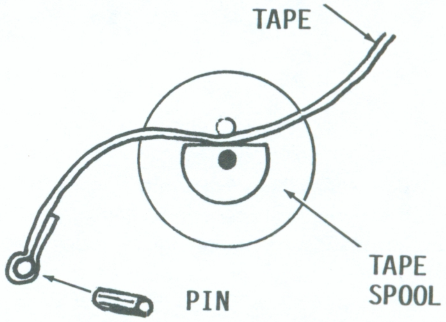


Figure 4. Securing the tape to the spool.

Material Sources

The shutter cloth came from National Camera Repair, Englewood, Colorado. A current source is Leather/Cloth, 116 Lunado Way, San Francisco, CA 94127. The shutter tapes are available in fabric stores and are known as twill tape. One source is Couture Fabrics, 320 King St., Alexandria, VA 22314. Film in the 9x12cm size is available from Fotohaus-Steins, Hohe Stabe 117-119, 500 Koln 1, West Germany. I have purchased several boxes of Agfa Pan (B & W) in both ASA 100 and ASA 400 speeds.

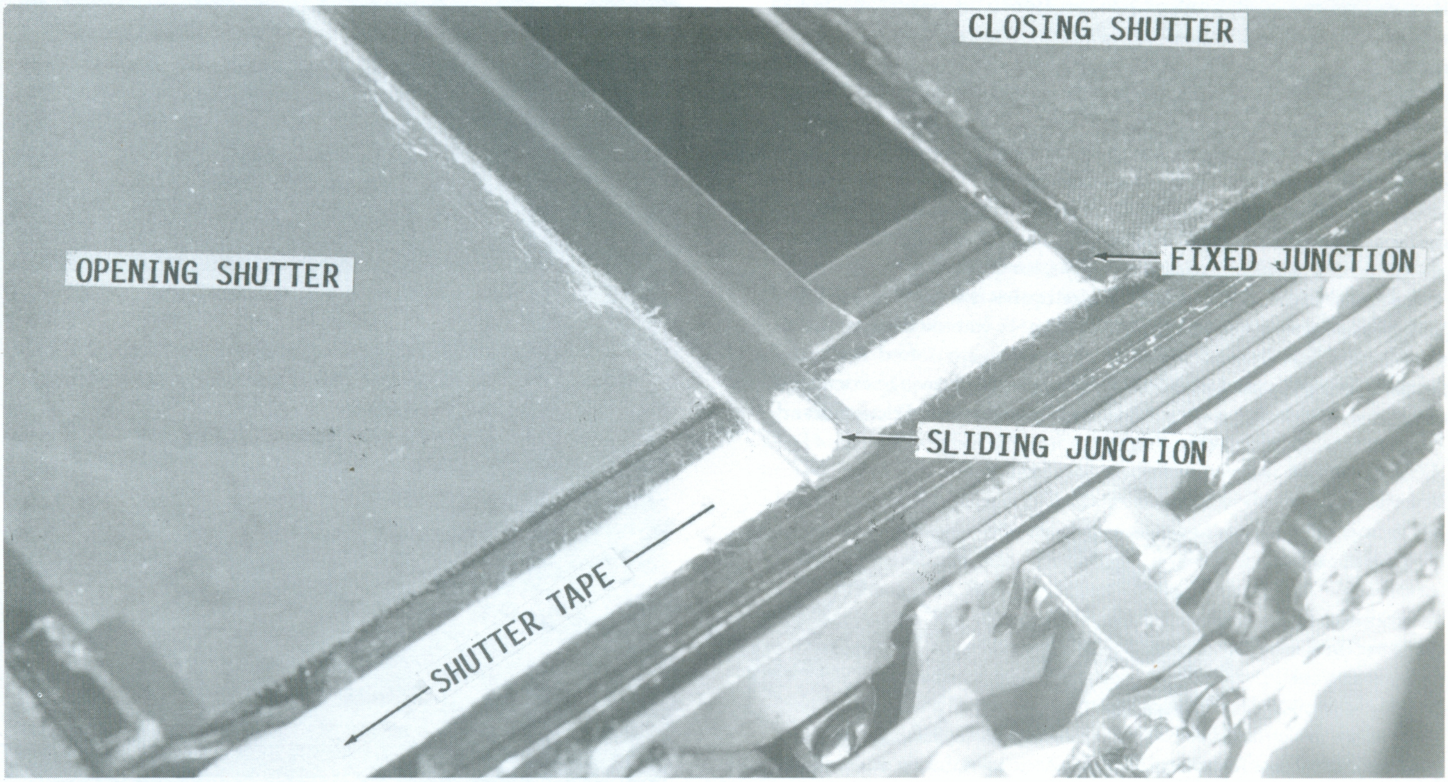


Figure 3. Closeup of the shutter components.

CARL ZEISS JENA BINOCULARS OF WORLD WAR II

Eugene Zartarian, Paramus, N.J.

The more one delves into the realm of Carl Zeiss Jena binoculars, the more apparent become the wonders of their optics. Recently, I came across several of their binoculars with particularly exquisite optics.

The first is a Carl Zeiss Jena 5 and 10 power binocular with apparent 70 degree fields. Its optics are remarkable.

Before I disassembled the binocular to study its optics, a repairman, Kevin Kuhne, had told me that he suspected the oculars were of an orthoscopic design. He was able to see three cemented lines by peering along the back of the eyepiece. This spurred me on to disassemble the binocular and to check it out.

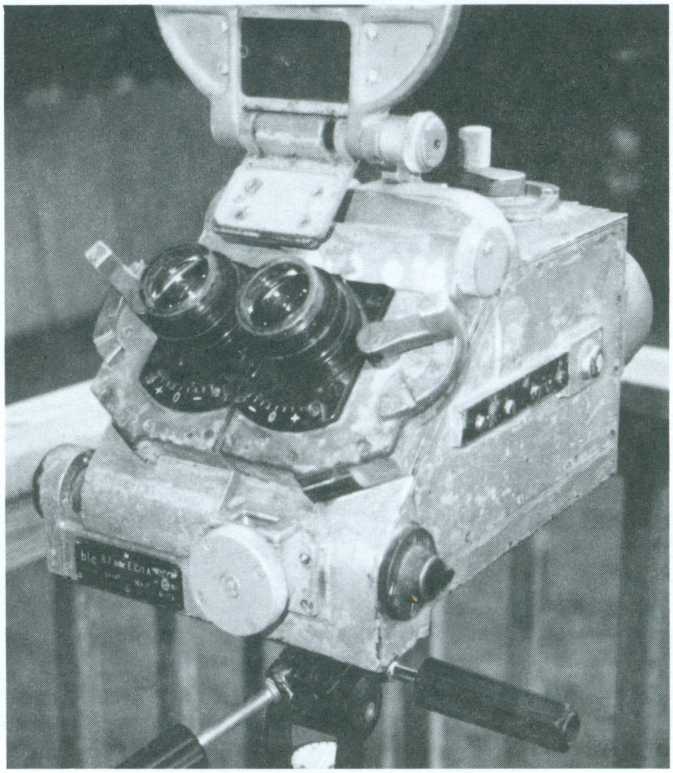
When I got the lens apart, I discovered that it was composed of a plano-convex eye lens and a field lens of four cemented elements. This makes it an orthoscopic ocular, which is found only in military instruments — probably because of its high cost of manufacture.

Roger Gordon, a dealer in optics, brought to my attention that Horace Dall of Luton, England had mentioned this ocular in a book entitled "Astronomical Instruments and Observatories for Amateurs."

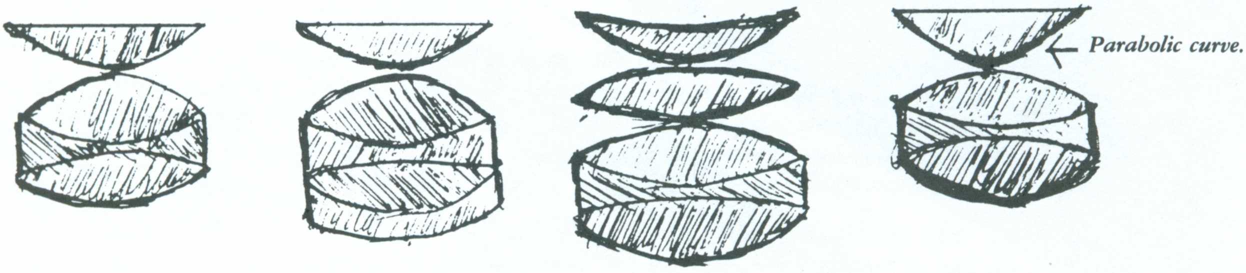
The optics of this binocular are composed of 70mm objectives, Amici Schmidt roof prisms with 2¼" entrance and exit faces, and the eyepieces described above. Their orthoscopic design more fully corrects all aberrations.

The optical engineers at Carl Zeiss have wrung many orthoscopic designs from the classical orthoscopic. Several are illustrated here. All have been used in various military instruments.

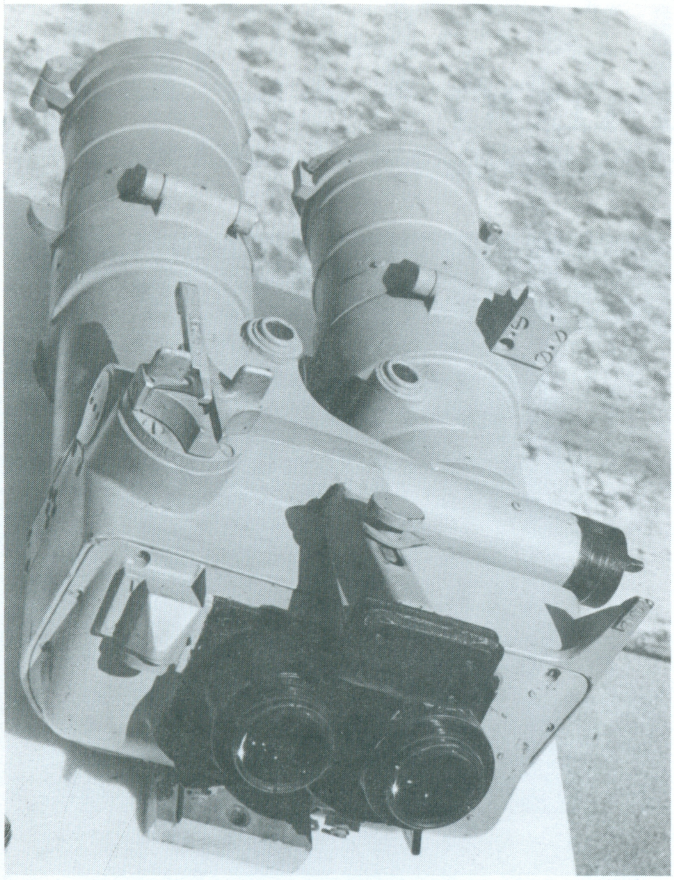
A second instrument with exquisite optics is a 10x80 Carl Zeiss Jena binocular bearing an "Eagle M" logo. It was exciting to disassemble this instrument. To my delight, I again found the same fantastic design as used in the 5/10x70 described above. The ocular is of orthoscopic design with a field lens of four cemented elements and a plano-convex eye lens. The prism system is a Porro Abbe with its exit face inclined at 20 degrees. This is a very superior binocular to use for rich field and star-gazing.



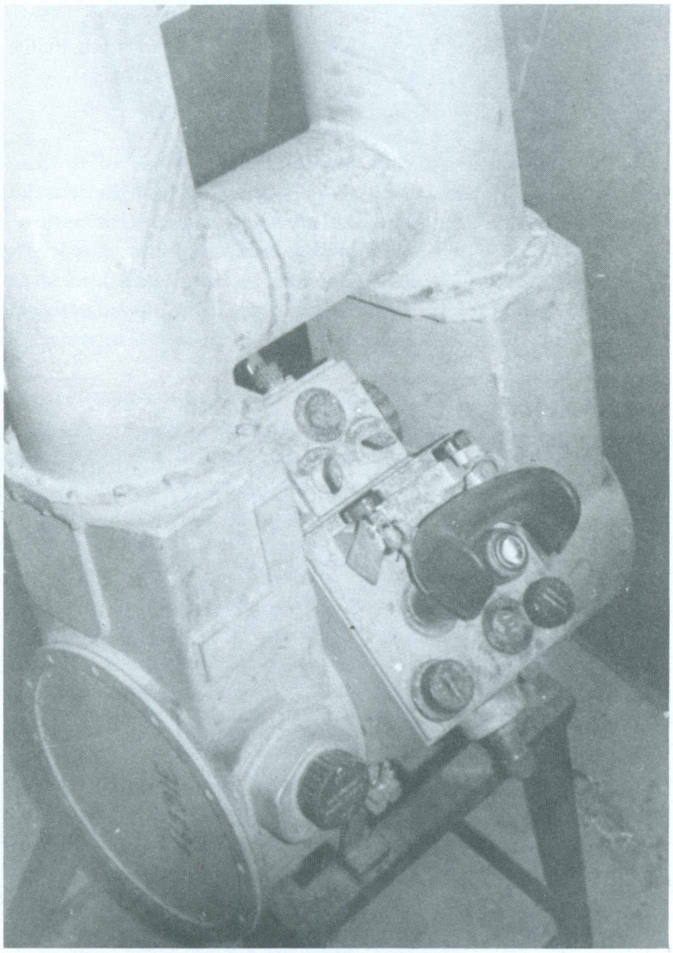
5/10 power binocular with 70mm objective.



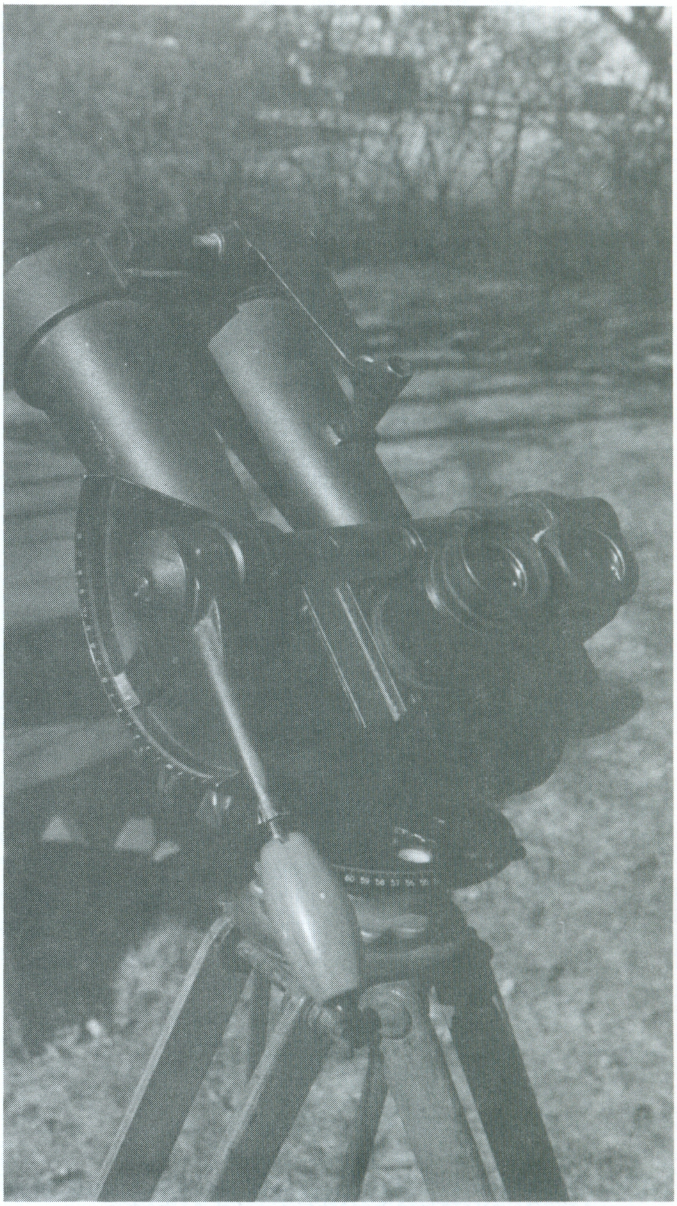
Classical orthoscopic ocular design (far left) and three variations.



10x80 binocular bearing "Eagle M" logo.



The giant 20/40x200mm binocular.



10x80 binocular with six-element Erfle ocular.

Another 10x80 of special interest is a Carl Zeiss Jena "great." It is particularly appealing to the eye because of its aesthetics. It has circles on both axes.

This instrument's optics are made to a high degree of perfection. Such optics never fail to excite one's imagination. The design is very different from that of the other 10x80. Here, the prisms are Amicis with four-inch-long roofs and exit faces inclined at 80 degrees. It boasts a fine ocular with three cemented achromats, which makes it a six-element Erfle ocular.

These three are but a few of the large family of binoculars manufactured by Carl Zeiss Jena for military use in World War II. Unquestionably, there is still a large number of these binoculars still remaining to be disassembled and examined. In the collection of the Smithsonian Museum in Washington is a truly giant binocular made by Carl Zeiss Jena. It is the largest known to date: a 20/40x 200mm. The accompanying photograph gives some idea of its massiveness.

The story of large binoculars does not end with the Smithsonian's 200mm instrument. I have been told by Ed Kaprelian, an honorary member of Zeiss Historica, that a binocular with 300mm objectives has been reported. But until this is further substantiated, we can only imagine the wonders of such a marvelous optical tool from Carl Zeiss Jena.

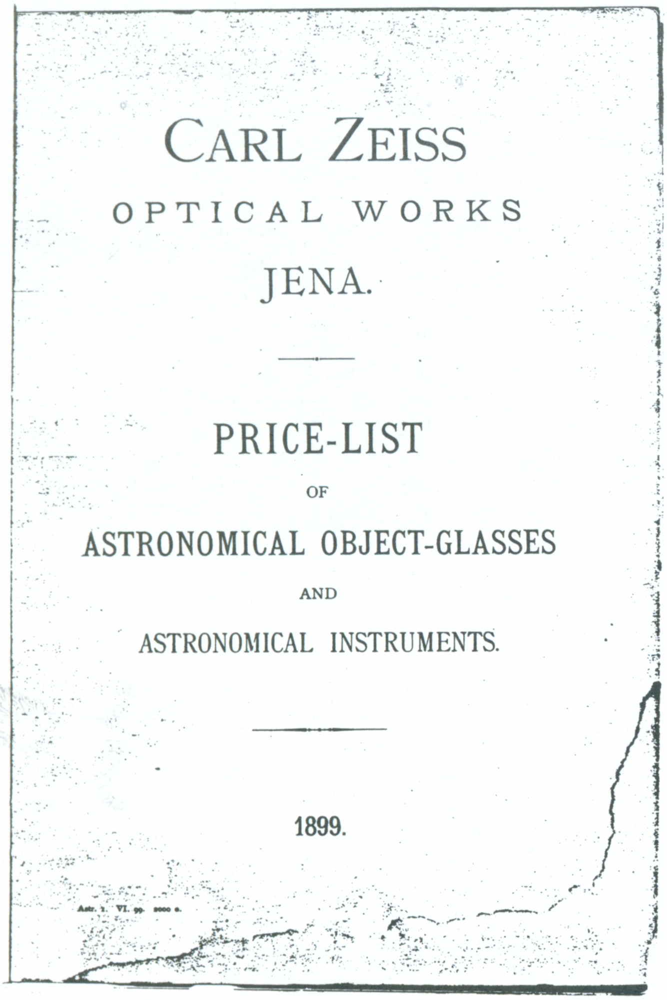
THE ASTRONOMICAL DEPARTMENT'S FIRST CATALOG

Nicholas Grossman, Rockville, Maryland

In 1899 the Astronomical Department of Carl Zeiss published its first catalog listing the prices of its Astronomical Object-Glasses and Astronomical Instruments. At the bottom of the title page the publication is identified as "Astr. 1 VI. 99. 2000 e." indicating that it was printed in June 1899 and is one of 2000 copies published in English. The prices were given in German Marks.

While the 24 page publication is clearly identified as a price list, it is still surprising that the catalog has no illustrations at all. Its main value to the historian and the collector is that it identifies and describes the complete line of the Astro Department's telescope objectives at the turn of the century. The following telescope objectives were listed:

"A" Binary Apochromatic Object-Glasses (without secondary spectrum). The catalog notes that these objectives use special Schott glasses, then remarks, "...the prices of these object-glasses are higher



CARL ZEISS

OPTICAL WORKS

JENA.

PRICE-LIST

OF

ASTRONOMICAL OBJECT-GLASSES

AND

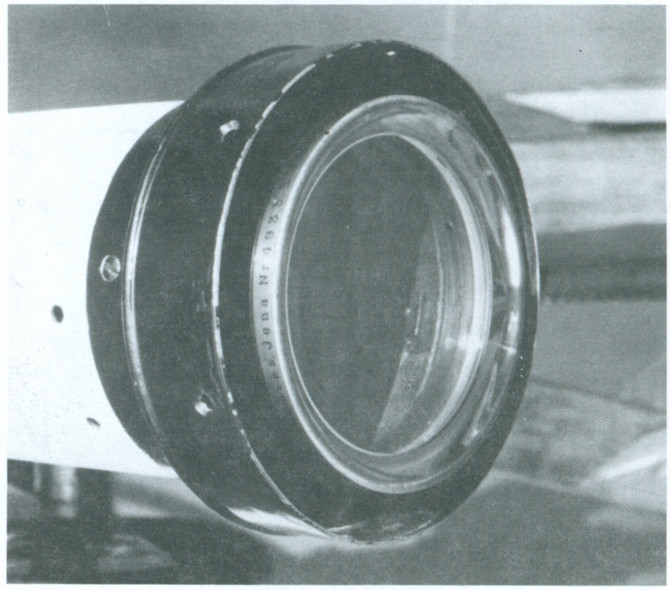
ASTRONOMICAL INSTRUMENTS.

1899.

Title page of the 1899 catalog.

than those of ordinary glasses on account of the great difficulties encountered in the production of the material...". The sizes listed are of 50mm to 450mm apertures, with larger sizes available on order.

"B" Triple Apochromatic Object-Glasses (according to Dr. Koenig's formula). These objectives consist of one flint and two crown glasses and "...yie!d absolutely colourless images...". The sizes are of 40mm to 180mm apertures.



A type "E" objective.

"C" Binary Telescope Object-Glasses. These objectives are described as "...made from heavy but permanent Jena glasses...but not free from secondary spectrum." The apertures are from 60mm to 200mm.

"D" Triple Telescope Object-Glasses. These objectives are characterized as providing a large flat field, larger apertures than series "F", but not free from secondary spectrum. The sizes are from 20mm to 150mm.

"E" Astronomical Telescope Object-Glasses. (Made of ordinary silicate glasses.) These objectives are based on the classical Fraunhofer formula and are the objectives most commonly encountered by collectors today. It should be noted that the two largest Zeiss refractors in the United States, the 300mm Griffith telescope and the 250mm Franklin Institute telescope, are equipped with type "E" objectives. Sizes were from 20mm to 500mm, with larger sizes on special order.

"F" Triple Telescope Object-Glasses. These lenses were made of ordinary crown and flint lenses and the lens elements were cemented together. (Type "B" objectives have air-spaced, not cemented, lens elements.) The sizes were from 40mm to 120mm.

"G" Long Focus Apochromatic Aplanatic Object-Glasses. (Dr. Harting's formula for celestial photography.) Apertures available from 60mm to 180mm.

"H" Short Focus Object-Glasses of Large Aperture adapted for celestial photography. These objectives were based on the Petzval anastigmat and Planar lens formulae. The catalog noted, "...dimensions and relative apertures of these object-glasses being subject to considerable fluctuations, exact prices cannot conveniently be listed. Their cost is therefore estimated in each individual case."

The only prewar objectives the author has actually seen or is aware of are types "A", "B", and "E" used as primary telescope lenses, and the type "C" used on smaller auxiliary finder telescopes. If any readers can provide information about the existence of the other Zeiss objectives listed in Astro 1, kindly send it to our Editors. (In the mid-1920s Zeiss introduced a modified two-element air-spaced objective, designated as "AS". That type of lens lies outside of the scope of this article.)

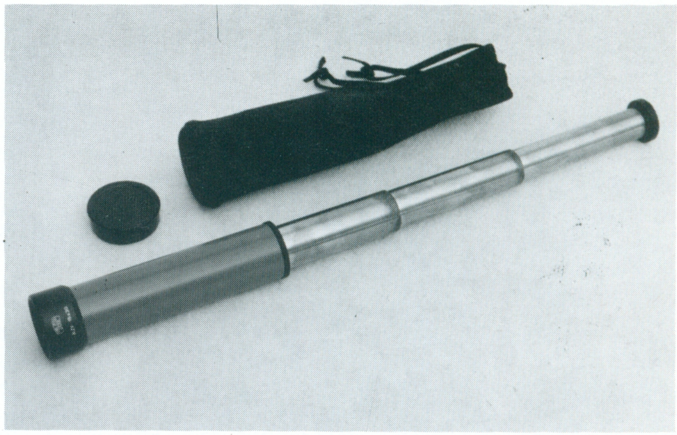
LICHTSTRAHLEN

Light Rays: Notes of Interest to Those Interested in Zeiss and Its History

MYSTERY EYEPIECE

Member Charles Gellis would appreciate help in identifying this eyepiece. From its appearance and nickel chrome finish, he believes it to be from the early post-World War I era. Its overall height is 60mm; outside diameter of the threaded base is 30mm; outside diameter of the eyepiece tube is 25mm. Magnification is approximately 7x. Its view is wide-field with a controlling iris.

NOSTALGIA

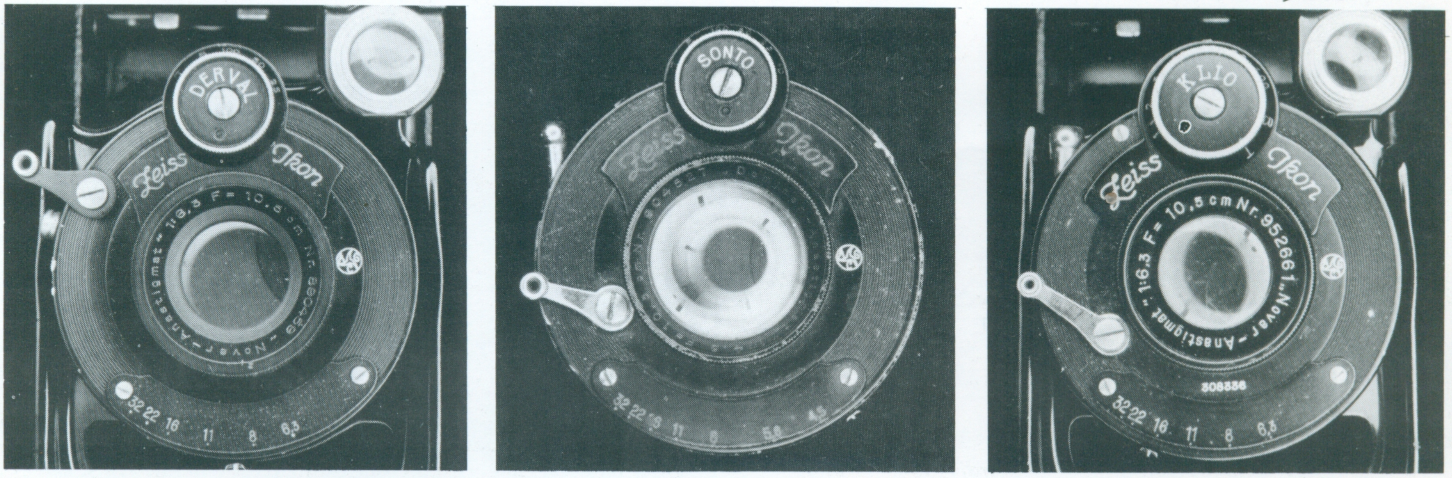


At the Spring 1987 Leipzig Trade Fair, Zeiss Jena introduced a modern version of the collapsible telescope. It magnifies 15 times, and has a 30 mm diameter objective. It is constructed of four "telescoping" tubes. Collapsed length is 7 inches (17 cm), extended 17 inches (43 cm). Finished in tan leather covering and carried in a soft leather pouch, it is just what every sailing enthusiast needs.

ZEISS EXHIBITION AT CALIFORNIA MUSEUM

"Zeiss: Photographic Precision", an exhibition based on the vast Zeiss collection donated by Society life member Mead Kibbey, will be on display at the California Museum of Photography from December 1, 1990 to February 16, 1991. The exhibition will assess the contributions of Zeiss to both the professional and amateur markets. The Museum, (714) 787-4787, is in Riverside.

INEXPENSIVE BETWEEN-THE-LENS SHUTTERS OF THE LATE 1920s.



The rare Sonto shutter (center), flanked by the more common Derval (left) and Klio (right). Sonto appears to be a version of the Klio, but without the 1 sec. to 1/5 sec. slow speeds. Serial number of the lens in the Sonto dates the piece as circa 1928. Derval shown is from 1927-28, Klio from 1929. Top-of-the-line shutter of this era was of course the Compur.

Zeiss Ikon

Mircoflex

Die kombinierte Spiegel-Reflex- und Deckrullo-Camera

für den

anspruchsvollen Amateur

Für Sport- und Reporter-Aufnahmen die

Ideal-Camera

dank ihres

geringen Gewichtes,
sofortiger Bereitschaft
u. optischer Ausstattung

mit Zeiss-Tessar 1 : 4,5 15 cm Mk. **495,–**
mit Zeiss-Tessar 1 : 4,5 16,5 cm Mk. **535,–**
mit Zeiss-Tessar 1 : 2,7 16,5 cm Mk. **715,–**

Sonder-Druckschrift kostenlos im Fachgeschäft oder direkt von

Zeiss Ikon A.G.
Dresden 211