

ZEISS HISTORICA

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The Zeiss Historica Society held its Annual Meeting in North Plainfield NJ

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.

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Editor	John T. Scott

Material for the journal can be sent to the Editor at 73 Winsor Place, Glen Ridge, NJ 07028 or to any Officer. Please send all other correspondence to Zeiss Historica Society, 300 Waxwing Drive, Monroe Twp. NJ 08831, USA. Annual membership dues: \$35 (USA), \$45 elsewhere. Dues include subscription to Zeiss Historica, airmail postage overseas.

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On the Covers

Front Cover: Three of the wide-angle lenses discussed in Charles Barringer's and Pierpaolo Ghisetti's article on page 12, seen in front and back views. Left to right: Orthometar, Herar, Biogon. Photo: Barringer



Back Cover: An advertisement for the Zeiss Ikon Super Ikomat that appeared in the August 1934 issue of *Camera Craft*. Around 1936 Zeiss Ikon gave up on the "Ikomat" name and all Ikomats became Ikontas.



President's Letter

A few months ago I mentioned in this forum how impressed I was by the new spirit rampant in the Photo Lens division of Carl Zeiss. The new management people there were young and clearly market driven, in sharp contrast to the engineering driven (one could also say perfection-driven) attitude that Zeiss has historically affected.

We now have confirmation that every silver lining edges a cloud, that there is no such thing as a free lunch, and that Zeiss's foray into modernity is not an unalloyed blessing.

The news has filtered down that Ralf Coenen, the (former) General Manager of the Division, has performed an act that must have them shaking their heads at Zeiss even now, two months after the event. He jumped ship, and accepted an offer involving management-board responsibilities as well as overall line responsibility in a roughly analogous department to the one he left at Zeiss. Where? Leica GmbH, no less.

After only a few years at Zeiss the young whiz-kid has demonstrated what the older entrenched managers at Zeiss were probably muttering in their beards (figuratively, you understand)—that you can't trust anybody these days, and it was dangerous bringing aboard a whipper-snapper who had not served his apprenticeship in the Zeiss organization and come up through the ranks.

This confirms a pattern established by Tom Miller, former head of Carl Zeiss Inc. in Thornwood, New York, who bailed out of the position after only two years at the helm. A member of the Stiftung Management Board in addition to his responsibilities in Thornwood, neither the lack of influence within the company nor inadequate monetary reward could have been Miller's primary motivations for looking elsewhere.

As if to compound Zeiss's woes, Dr. Peter Grassmann, Director of the Management Board of the Stiftung (effectively Chairman of the Board of Carl Zeiss) has declared that he will also be leaving the firm to enter retirement at the end of the calendar year after a tenure of less than ten

years, an unthinkable short time by the standards of the Zeiss of old.

There are other indications of a certain malaise at Carl Zeiss; of a basic conflict between the structure and values that have served Zeiss well for the last 155 years through an incredible variety of social and economic conditions, and the requirements of a new age and order in the new millennium.

Rumors of the possibility of issuing some sort of shares in Zeiss are no longer categorically denied. Details of how this could be accomplished without undermining the philosophical underpinnings of the Stiftung have not been revealed, but the need for some sort of restructuring seems overwhelming.

The classic reason to issue shares is to generate capital to fuel growth. Zeiss traditionally enjoyed the kind of generous margins that allowed internal financing. But an increasingly competitive environment allows less room for the kind of expensive, zero-tolerance thinking that produced adequate development capital previously.

Compounding the squeeze, Zeiss is still staggering under the burden of having "rescued" their cousins in Jena from oblivion after reunification. As other firms with deep roots have learned, the marketplace is ill-disposed to paying a steep premium for maintenance of standards and attitudes that created the renown of the company a century ago.

Perhaps more telling, and closing the loop neatly, is that employees want to be compensated creatively these days. Mere money (subject to ugly taxation) is not enough to attract the kind of top-end people that a company as complex as Zeiss needs to run its business profitably. And a Foundation, by its very nature, cannot gratify its employees with a piece of the action. Stay tuned.

In closing, we regret to announce the passing of another one of the legendary figures at Zeiss. Kurt Michel died March 20 at 92. See the profile of Dr. Michel in *Zeiss Historica* Fall 1998, Vol. 20 no. 2.

Charlie Barringer

Pre-Zeiss Ikon Camera Design

Larry Gubas, Randolph, New Jersey

In the difficult business years of the 1920's, before the Leica and Contax, the new fashion of cameras were all outgrowths of old designs with improved materials—wood giving way to more expensive lightweight metals, and faster lenses. In this world the predecessor companies of Zeiss Ikon were innovative and looking to compete, but their idea of better design was not necessarily smaller and lighter but rather a better strut or camera-body support system, a new viewfinder, a better focusing scale—probably in ivory. True, there was a bit of a rush to focal-plane cameras, but most of these could not be called “candid cameras.” This article is intended as a sampling of some of the new wonders of the predecessor companies and a competitor at the moment of financial disaster when Zeiss money and business perspective came to the table to save the industry.

As the advertisement (figure 1) shows, **Ica** was, for the most part, a company making various cameras of the same sort. This February 1927 adver-

tisement shows a great number of similar cameras with little to set one apart from the other except size and materials. The most modern of the bunch shown in this picture is the very snappy personal Kinamo movie camera from Emmanuel Goldberg's design. However, even this marvelous camera was a real handful. Notice that Carl Zeiss, Inc of New York is still selling Ica cameras, but with no real mention of Zeiss Ikon, which had come into existence some months before.

Ernemann was a stand-alone organization that manufactured every part of its product itself. It had Ludwig Bertele in its lens-design department making, for 1924, an incredible speed lens that made the Ermanox camera an outstanding value for its day. The camera changed over the years from 1924 to 1930, when its manufacture ceased. There were at least three different film formats and two basic styles. The new lens was nearly as big as, and heavier than, the camera. One version had a bellows and locking struts (figure 2), while

another had a totally metal body with the lens built into the body of the camera (figure 3). There must have been a lot of storage space in these years for, in the 1939 Willoughbys ad, it was still being sold as new nine years after manufacturing had ended. This, like many cameras of the early days of Zeiss Ikon, was marked with both the Ernemann and Zeiss Ikon trademarks.

Another Ernemann camera is the contemporary typically oversized single-lens reflex but designed to telescope to full size in use and then reduce its size when not taking pictures (figure 4). These cameras were short lived, since they took up so much room and required lots of time to prepare for use. The lens had to be moved outward, the viewing area and hood had to be erected and the film plate, cassette or pack had to be put

The Ica product line in 1927. This ad from February of that year appeared just months after the formation of Zeiss Ikon. **Figure 1**



Ica

A GREAT FAMILY of distinctive picture makers—each model quite the best in its particular field. All are fully described in the Ica catalogue.

CARL ZEISS, Inc.
485 Fifth Avenue NEW YORK

Pacific Branch:
728 So. Hill Street, Los Angeles, Cal.

f-1.8



Actual result with Ermanox; taken by ordinary incandescent electric lamp.

Perfectly Timed under "impossible" light conditions!

BRIEFLY, the place of ERMANOX can be said to begin where all other cameras leave off! Its accomplishments are incredible. Its range of usefulness for instantaneous photography, under adverse conditions, seems almost limitless—night scenes, instantaneous exposures with ordinary stage lighting, of children, and instantaneous Autochromes are but a few of the cases where ERMANOX stands alone.

The comment of the user was scarcely exaggerated, when he exclaimed: "Why, my eye becomes my exposure meter, with my Ermanox. If I can see it, I can photograph it!"

The new Ernemann catalog shows the most complete line of high grade cameras ever offered. Get your copy from your dealer, or free by mail.

HERBERT & HUESGEN CO., 18 East 42nd Street, NEW YORK
Sole United States Distributors

ERMANOX

Please mention "The Camera" when Corresponding with Advertisers

The Ermanox camera with its huge $f : 1.8$ lens. This is one of the earlier models with bellows and struts.

Figure 2

At a Fraction of Its Former Price!

ZEISS IKON

ERMANOX

(Former Model)



SUPER-FAST
 $f/1.8$
ERNOSTAR
LENS

Focal Plane
Shutter with
Speeds from
1/20 to 1/1200
Part of
a Second

Here is a rare opportunity to buy at a big saving a real miniature camera which stops the fastest action. The extreme speed of the lens makes it possible to make stage shots, indoor scenes, candid shots in shaded places or any picture under conditions difficult to photograph.

It is the smallest and most compact camera made having a lens of this speed and taking pictures $1\frac{3}{8} \times 2\frac{1}{2}$ in. Uses film pack and plates. The size of the camera is $3\frac{1}{4} \times 4\frac{3}{4} \times 3\frac{1}{4}$ in.

\$59.50 Including film pack adapter, 2 plate holders and ground-glass focusing panel.

MAIL ORDERS FILLED

TRADE IN
YOUR OLD
CAMERA

Send for
descriptive folder
C. E. R.

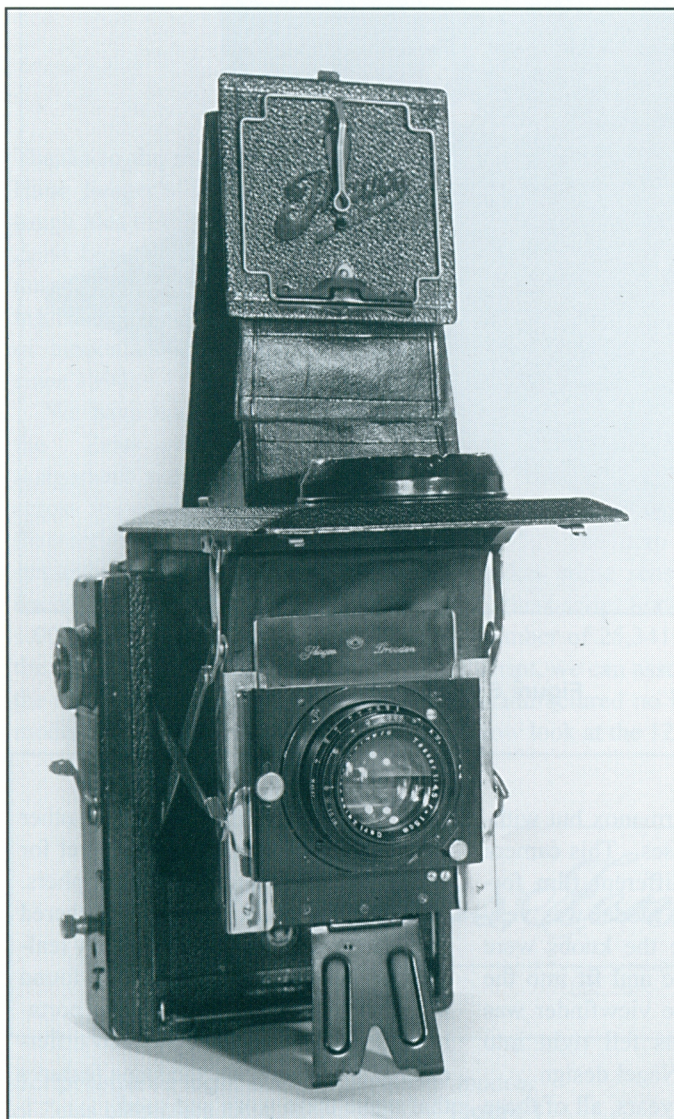
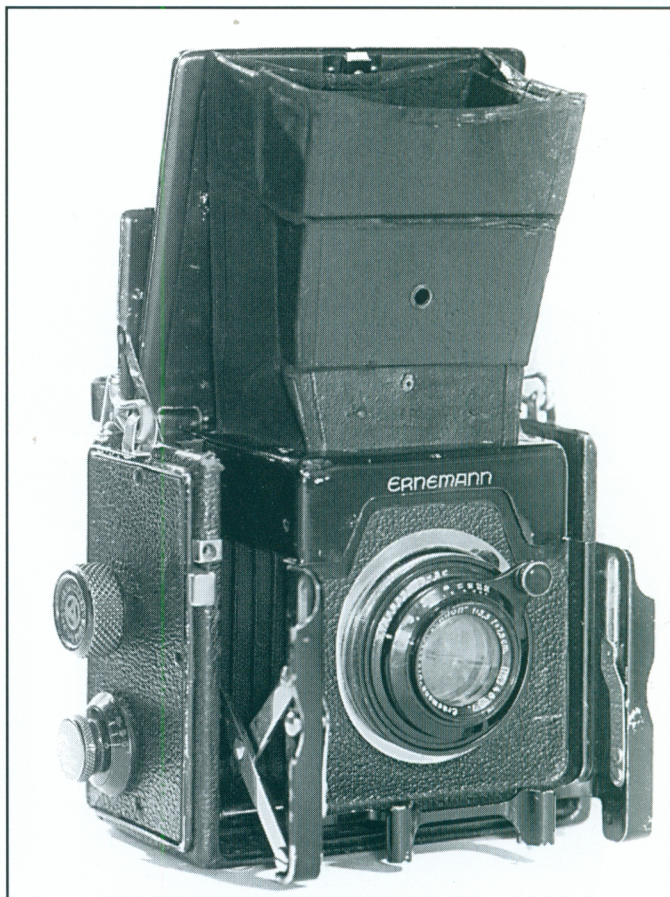
Willoughbys

World's Largest
Exclusive Camera
Supply House

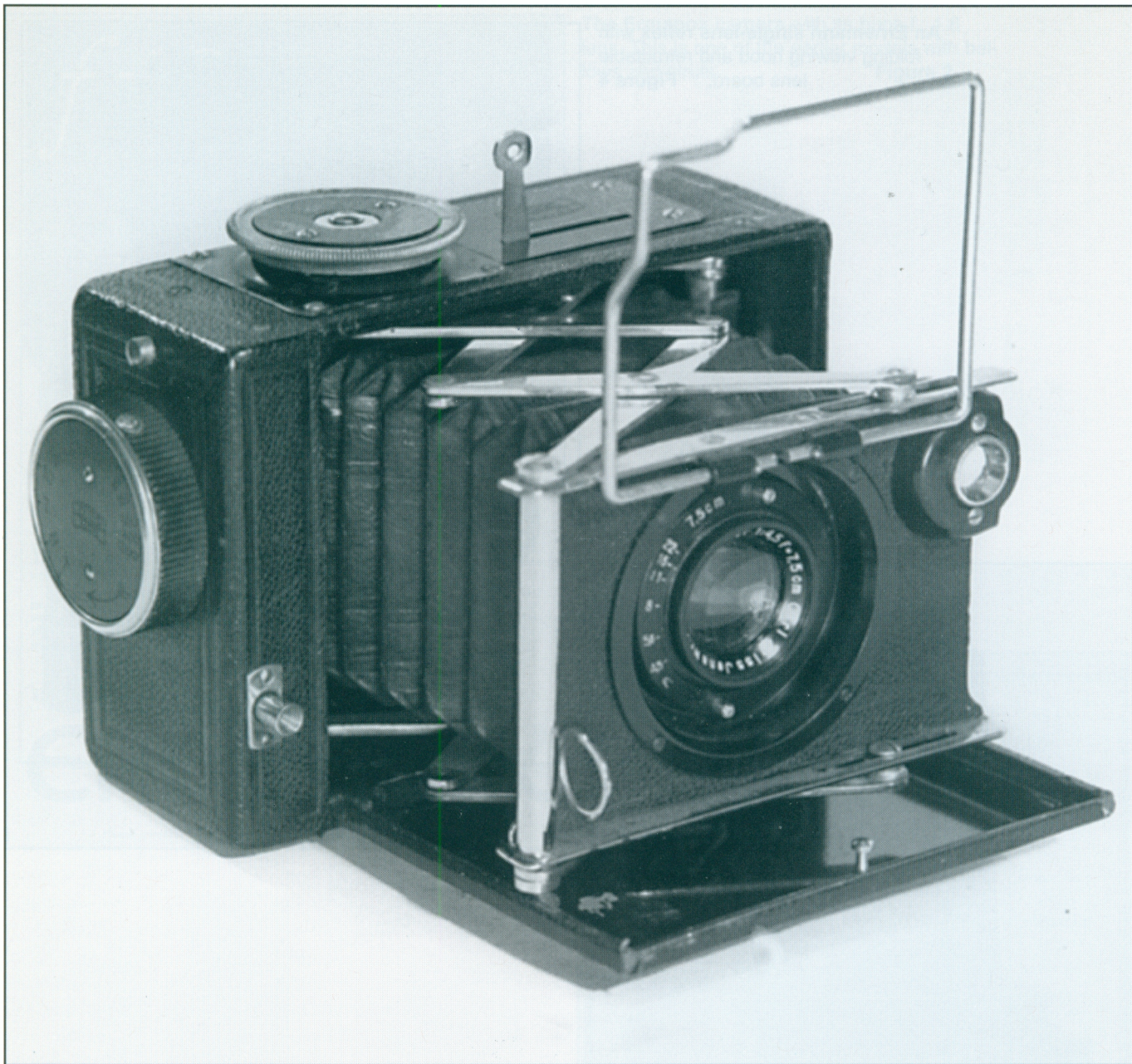
110 WEST 32ND ST. N. Y.

A later model Ermanox with rigid metal body, as seen in a 1939 ad, nine years after manufacture of the Ermanox line ended. Figure 3

An Ernemann single-lens reflex with folding viewing hood and retractable lens board. **Figure 4**



An Ihagee folding reflex made in Dresden, with a Zeiss Tessar lens. **Figure 5**



The Nettel camera made by Contessa Nettel in Stuttgart.

Figure 6

in place and changed. Not fast enough for the coming age. I also illustrate another Dresden manufactured camera of similar design by **Ihagee** (figure 5), which is altogether the same and yet different. This one has a Zeiss Tessar lens.

My last example (figure 6) is the Nettel camera made by **Contessa Nettel** in Stuttgart. This is one of the simpler and more effective cameras of this day

and is similar to the Ermanox but without any of the fast lenses. This camera was made in many different film formats, but this smaller model was very popular. On this one the knobs were better designed for use and fit into the hand very nicely. The viewfinder was quick and the controls fell right into your hand—a typical Nagel design.

Within a few short years, all of these

would be gone and 35 mm and other small formats dominated the market for all but the most seasoned photographers. However many years that they gathered dust on the shelf or in the attic, they really seem beautiful today when are found in good condition. However, the portability features that make them so different and interesting are the same features that make them worn and used.

Zeiss Serial Number Sequence

Jack Kelly, Oregon City, Oregon

Thanks to the information published in Hans Seeger's first book we have a rough idea of the date of manufacture of Zeiss binoculars based upon the serial numbers. Recently, Larry Gubas found information in Jena about the quantities of binoculars manufactured each year since 1894.

We have known for some time that the Zeiss system of serial-number assignment was what I call sequential across the model line. By this I mean that serial numbers were assigned in sequence regardless of the model produced. If you look at the serial number 1,000,000 you can assume that it was the millionth binocular produced, not the millionth binocular produced of that model. Not too long ago, it became

apparent to me that Zeiss did not use the sequential serial numbering concept in the earlier years. In my collection, I have early Feldstecher models in both script and block lettering. (See figures 1 and 2.) The information we have indicates that the lens logo with block lettering was introduced in approximately 1904. But, consider the examples from my collection listed in Table 1.

The earliest model serial number is 596, which would indicate production in 1895. The item is a DF 95, so this makes some sense. Now look at the highest script 8 x 20, which has a serial number of 25,341. Since the logo is in script, we can assume that the glass was manufactured no later than 1904. But, now look at the 12 x 25 with serial num-

ber 11,372. It has block lettering and should have been manufactured after 1904. The same is found on the 6 x 18 with serial number 7395 and block lettering. It seems obvious to me that the later Zeiss method of applying serial numbers across the model lines was not followed in this time frame. Since the 8 x 20 was, by far, the most popular glass it stands to reason that the serial numbers would be higher, reflecting the greater quantity produced.

If we now look at the data recently provided by Larry Gubas (Table 2), we can see the quantity of units produced each year.

By 1903, Zeiss had produced a total of 58,446 binoculars. From the examples in my collection, we know that they



Script-lettered logo, as found on earlier models of Zeiss binoculars. **Figure 1**



Lens and block lettered logo, introduced about 1904. **Figure 2**

Table 1 Examples from the Kelly Collection

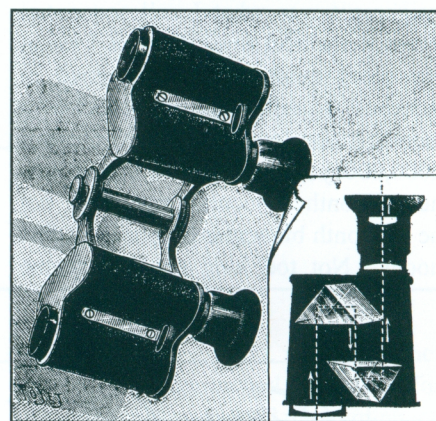
Trademark	Size	Characteristics	Serial number
Feldstecher	4 x 14 IF	Incised script, IP in degrees. Diopter -5,0,+5. Neuhofer & Sohn	2330
Feldstecher	6 x 18 IF	Block lettering, flat prism covers, sloped IP cap in degrees	7395
Feldstecher	8 x 20 IF	DF 95 incised script, IP in degrees, diopter -5, 0, +5, block leather, sloped shoulders	596
Feldstecher	8 x 20 IF	Incised script, no IP markings. Diopter -10, 0, +10, Lechner, Wein	2334
Feldstecher	8 x 20 IF	Incised script, no IP markings. Diopter -5, 0, +5, flat Diopter plate	8655
Feldstecher	8 x 20 IF	Incised script, IP in degrees, Diopter -5,0,+5	12138
Feldstecher	8 x 20 IF	Incised script, with IP markings. Diopter -5, 0, +5, beveled Diopter plate	25341
Feldstecher	8 x 20 IF	Block lettering, flat prism covers, sloped IP cap in degrees	45781
Feldstecher	8 x 20 IF	Block lettering, flat prism covers, sloped IP cap in degrees	54278
Feldstecher	12 x 25 IF	Raised script, no IP markings. Diopter -10, 0, +10, sloped shoulders	1035
Feldstecher	12 x 25 IF	Raised block lettering, IP markings in degrees. Diopter -10, 0, +10, sloped shoulders	11372

built at least 25,341 8 x 20's, 2,330 4 x 14's, fewer than 7,000 6 x 18's, and at least 1,035 12 x 25's, for a total of 35,706 binoculars. If we allow a reasonable guess and assume that there were really closer to 8,000 12 x 25's and 4,000 4 x 14's produced before 1904, and allow another 2,500 for the 10 x 25 model, the total comes to 46,841. When you throw in the Teleplast and other such glasses, the count begins to approach the production quantities shown in Larry's numbers.

Now for the \$64,000 question. When did Zeiss convert to sequential serial numbering, and, when they converted to the new method, what was the starting serial number? When I look elsewhere in my collection, I find a Teleater with serial number 184,044. Seeger says the

Teleater was first produced in 1909, by which time Zeiss had produced 181,759 binoculars. This Teleater is a very early model, missing some features not found on later models which would lead me to believe that it was probably produced in the first year or two of production for that model. Therefore, it seems obvious that at some point, Zeiss added up all the binoculars produced to that date and started serializing all future production from that number on up without regard to model.

What I would like to do is fill in the blanks. If each of you could provide me with serial numbers, model designation and descriptive information on any Zeiss binocular in your collection with a serial number less than 250,000, I will compile the numbers and attempt to nar-



The new prism glasses with flat prism covers (there are examples with sloped or turtle-backed prism covers as well in all sizes, but all of the larger sizes were turtle backs). Inset: The simple first Porro prisms. (From *Scientific American*, March 6, 1897.) **Figure 3**

Table 2 Units per year

Year	Quantity Built	Cumulative
1894	205	205
1895	1271	1476
1896	2775	4251
1897	4161	8412
1898	5426	13838
1899	7532	21370
1900	9288	30658
1901	9498	40156
1902	8335	48491
1903	9955	58446
1904	13278	71724
1905	17698	89422
1906	18154	107576
1907	17151	124727
1908	22980	147707
1909	34052	181759
1910	36361	218120

row down the transition point.

The serial numbers are usually hard to see and therefore find. They are usually on the bridge between the two tubes close to the tube itself. They are less than 1/16" in height and not deeply engraved. A magnifying glass would be appropriate for most of us to read it well.

Please direct your replies to Jack Kelly (binocs@msn.com) via e-mail or to the editor by regular mail. We will share results in future issues.

Glossary

Feldstecher:

Prism binocular (figure 3)

Relief. Fernrohr:

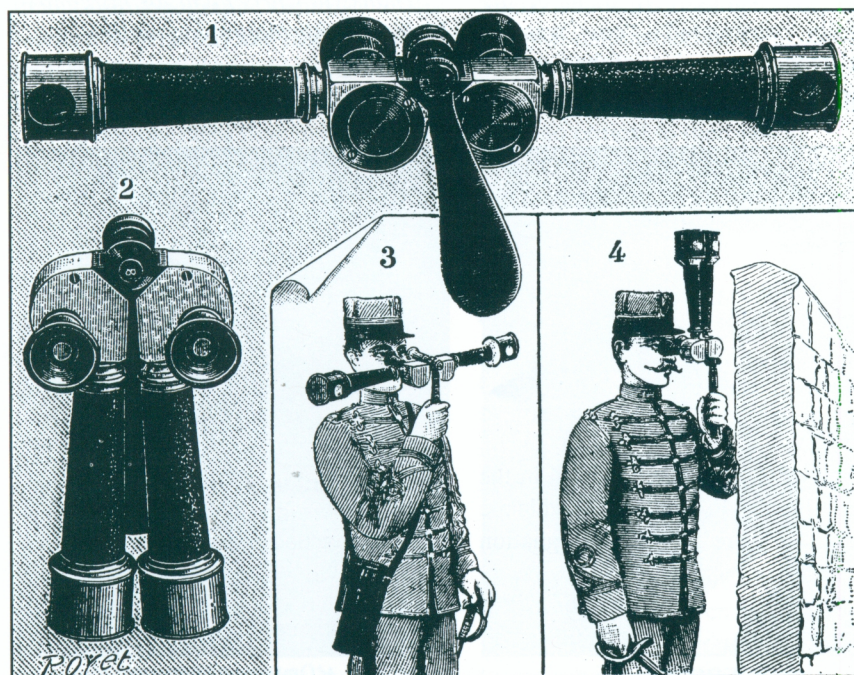
Stereo telescope (figure 4)

Scherenfernrohr:

Scissors telescope

Teleplast:

A later trademark for a non-Porro glass with roof prisms.



The "Relief. Fernrohr," far rarer than the regular prism glasses, gave greater dimension to the 3D effect and was useful in military applications to see over and around cover. The design was less popular commercially but evolved into the Scherenfernrohr for larger military purposes. (From *Scientific American*, March 6, 1897.)

Figure 4

Heinrich Valentin Erfle (1884–1923)

Erfle was born on 11 April 1884 in Dürkheim, Germany. He was the son of a district construction engineer, Heinrich Johann Erfle (1848–96), and Marie Erfle, nee Stolleis (1849–1923). He married Ilse Rittner in 1914, in Königshütte, and they had a son and a daughter.

Erfle studied at the Technische Hochschule in Munich from 1903 to 1906 and produced his doctoral thesis in August 1907. After an assistantship with the firm, he worked as a scientific collaborator (Mitarbeiter) with the optical shop of Steinheil & Söhne until 1909. He then moved to Jena where he also worked as a collaborator for the Carl Zeiss firm in the telescope department. In 1918 he was promoted to head this department, and his scientific work improved the performance of the contemporary optical systems for terrestrial and astronomical observation. Many of these innovations were for military products, which were a very active part of the firm's business. It was an important component, since there was a great competition with the other German optical firms of Goerz, Leitz, Busch and others during the years surrounding the First World War.

His published papers were on prisms and on algebraic formulae, but he also tried to broaden the knowledge of optics for all interested. His last work was mainly as a co-editor on the third edition of the *Grundzüge der Theorie der optischen Instrumente* (Basics of the theory of optical instruments) published in 1924. The first edition of this defining text on optics was written by several leading Zeiss scientists. Seigfried Cazapski had originally produced it as a record of the original work of Ernst Abbe. Strangely, Abbe had never put his findings to paper, but instead only

Zeiss Personalities

These two essays are part of a series that began a few issues ago. Previously published biographies in the series are:

Erhardt Glatzel	(Fall 1998)
Kurt Michel	(Fall 1998)
Rudolph Straubel	(Spring 1999)
Ernst Wandersleb	(Spring 1999)
Moritz von Rohr	(Fall 1999)
Alexander Smakular	(Fall 1999)

Larry Gubas

lectured to certain select scientists at the university. Otto Eppenstein, Maurice von Rohr and others had updated the text in 1904.

Today the name Erfle is still well known to amateur astronomers for the wide-field eyepieces he constructed. These eyepieces were prominent features of a number of Zeiss commercial binoculars, such as the Deltrintem, in the early 1920s. These same Erfle eyepieces were featured on many of the especially constructed "cost was no object" binocular devices of the German military forces during World War II.

Tragically, Erfle died April 8, 1923 in Jena while still in his prime. He had accidentally stabbed himself in the leg with a fountain pen and did not pay attention to the wound. He died soon after as a result of blood poisoning in connection with this injury. Rudolph Straubel was very careful to prepare Erfle's patent applications to benefit his estate and family.

Thanks to Chris Picht for his contributions to this biographic outline.



ERFLE



KÜPPENBENDER

Heinz Küppenbender (1901–89)

Heinz Küppenbender joined Carl Zeiss as a member of the scientific staff in 1927 immediately after studying machine construction at the Aachen Institute of Technology. He had been the First Scientific Assistant to Professor Bonin, who had been a school friend of Professor Bauersfeld, a member of the Zeiss board of management. In Jena, Küppenbender worked in many different Carl Zeiss departments within a very short time span to familiarize himself with the firm. He gained experience in the field of optics with hands-on work in the assembling of rangefinders and the manufacture of microscopes and observatories. He received his doctorate in Engineering in 1929 from the Stuttgart Institute of Technology with a dissertation on the principles of rotary disk shutters and their realization. This new technology revolutionized aerial photography and enabled Zeiss to merge its technology with the leading company of that time, Aerotopograph GmbH. He worked in Jena for his first two years with the firm, and his work was so brilliant that he was quickly moved to the new operation, Zeiss Ikon in Dresden, as the chief product designer. He worked under the management of Emanuel Goldberg and was assigned the leadership of the camera design departments. His first assignment was to trim out the redundant cameras of the predecessor companies and produce the first truly Zeiss Ikon catalog. He was responsible for the acquisition of new design staff such as Nerwin and Padelt, the direction of designs and personally devised many of the technical elements of these designs.

He put together a department that stood well on its own, which was just as well because in 1932 Goldberg was removed from his position by the Nazi

party and Küppenbender was chosen to head the board of management for Zeiss Ikon. He successfully fostered the growth of the lines of cameras into many directions and other business products. He seems to have been the prime mover of the golden age of pre-war Zeiss Ikon products. The design of the Contax appears to stem mostly from his work, with the shutter, rangefinder and light metering being areas of strong involvement. The proliferation of his innovative designs and enlightened designers revolutionized the firm and the direction of camera design to come.

In 1941 he was suddenly called on to be a member of the board of management for the parent company, Carl Zeiss, and a deputy representative of the Carl Zeiss Stiftung, due to the death of August Kotthaus in an auto accident. He continued in the Kotthaus tradition and kept the company stable. This period saw a constant onslaught of the Nazis, who were looking for any opportunity to nationalize the firm. However, they also knew that they needed to keep innovative Zeiss scientists producing items so critical to their plans.

Küppenbender's main responsibilities were in the areas of production, and because of this he served on a great number of government committees as a part of his job. During the war, he was very quietly acting as the opposition for the Nazi party in Thuringia, although he had to become a member of the Nazi Party to keep control of the firm. He did much to shield and protect his Jewish and other oppressed employees. Unfortunately, Wandersleb, Schrade, and others had problems maintaining their work status due to Nazi intervention. Even Otto Eppenstein, who was a Protestant, was kept out of the plant due to his Jewish surname. Küppenbender

is credited with saving as many as 3,000 people from deportation to the camps.

In 1945, he was the key person taken to Heidenheim by the American Army. Like some of them, he was first taken to Wimbledon in England for what was called "denazification" but was able to take the scientific knowledge gained in the war years into new products rather than try to reinvent the products of the 1930s. The technical wizardry of Küppenbender and his scientists and technicians brought the crippled Zeiss and Schott firms back to the industrial prominence that it had gained under the hands of Ernst Abbe and Carl Zeiss. He piloted the Carl Zeiss parent firm until his retirement in 1972 after 45 years of service, when he was 71 years old.

He has been quoted many times that the happiest years of his career were spent at Zeiss Ikon. However, it was his sad duty to close that firm as one of his final managerial acts when its continued financial losses were too great to continue in the camera manufacturing business. He was the key person in the growth of Zeiss Ikon but it was his decisions of the 1950s and 1960s that ended their profitability in 1954. The constantly changing merger of Zeiss Ikon and Voigtländer, the acquisition of Deckel (Compur) and retention of Gauthier (Prontor) shutter firms, and the poor decisions regarding what products to make were all his. He never gave the decision power to those who were closer to the technology and market, as he had been himself earlier in his career, but rather relied on his past experience from the 1930s.

He was the most important personality of his time for the firm. Zeiss Ikon made huge profits in the 1930s and he brought Carl Zeiss in Oberkochen to life.

The challenge of wide-angle lenses in the early years of the Contax

By Charles Barringer, Haddonfield, New Jersey and
Pierpaolo Ghisetti, Modena, Italy

With the introduction of the Leica in 1925 and the Contax in 1932, the age of the miniature camera had come, and with it a new set of priorities for camera and lens designers. No longer were the camera firms concentrating on new ways of opening a camera, improved strut systems or novel and different plate film backs unique to their cameras. No, things had radically changed. Be it the Contax or the Leica, there was a need for a totally new outlook.

One of the primary areas of concentration was the range of lenses for the new camera systems. Here, Zeiss had a significant advantage over Leitz. Despite its 7-year advantage in "miniature format" and the presence of Oskar Barnack and Max Berek, Leitz's expertise lay primarily in the realm of non-photographic optics.

Zeiss, on the other hand, had been designing photographic lenses since 1890 and had a major department of photographic lens designers with expertise in all the disciplines of this arcane specialty. More importantly in the days prior to computers, Zeiss employed several giants in the field of photo lens design, truly inspired individuals who seemed to have an intuitive feel for the medium in which they worked. One of these was Ludwig Bertele, who had joined the Ernemann firm right out of high school. There he had gained worldwide renown as the inventor of the $f:1.8$ Ernostar, the radi-

cal new high-speed lens for the Ermanox. Having come to Zeiss as a by-product of the 1926 Zeiss Ikon merger, he was given a clean sheet of paper and told to develop the new lenses for the Contax system.

Bertele's first responsibility was to give the Contax system its exclusive range of high-speed Sonnar lenses, lenses that gave the system a marked advantage over all the competition for many years. Wide-angle lenses were considered less a priority at the time and were left for later. The ten interchangeable lenses offered at the introduction of the Contax included four standard 5cm lenses, four long focal lengths, a 4cm $f:2$ Biotar (later re-designated as 4 $\frac{1}{4}$ cm, and in neither case a true wide-angle), and the 2.8cm $f:8$ Tessar, the only real wide angle. The Tessar was the widest extension of the classic formula, while the Biotar is attributed to Willy Merte who had worked on both designs for a number of years.

The first wide-angle lenses

The 2.8cm Tessar was produced regularly throughout the prewar years despite being slow (at $f:8$) and uncoupled to the camera rangefinder. Until Biogon production was ramped up substantially in the late thirties (probably as military orders became more of a factor) Tessar and Biogon production was essentially the same. The high speed 4cm (and 4 $\frac{1}{4}$ cm) Biotar was never a commercial

success. It was expensive and did not offer much more angular coverage than the standard lenses. It was neither fish nor flesh nor fowl—not a standard lens but not a true wide-angle either. But somehow subtracting 5mm in focal length made all the difference. The 3.5cm (or 35mm)* focal length, with its roughly 60° angle of view, was just right. Here was the ultimate general purpose wide-angle that "miniature" photographers had clamored for.

The 3.5cm $f:2.8$ Biogon was introduced in late 1936 and available in early 1937, more than four years after the system's introduction. Its design derived from the Sonnar, using six-element/four-group construction. It offered remarkable (for the time) high speed, with good flare control and very good evenness of illumination.

The Biogon was more expensive than the other wide-angles for Contax, but it represented a good value and the Biogon was an undeniable success in the marketplace. Not only was the lens produced regularly through the war years, but its offspring, essentially unchanged from the original design, were produced after the war in Jena

* In this article prewar lens focal lengths have been designated in centimeters (cm), and post-war in millimeters (mm) consistent with the original markings. Jena continued to use cm designations for awhile after the war before changing to mm, by then in general use worldwide.

and, until recently, in the Soviet Union.

The Orthometar

Even though the Contax was aimed at professionals and well-heeled amateurs, Zeiss Ikon also saw a market for a more accessible alternative. Merte, at Carl Zeiss, adapted an aerial camera lens that he had computed in the mid-1920s to the "miniature format." The result was the Orthometar 35mm $f: 5$ announced as the fifteenth lens for the system in the December 1937 issue of the dealer publication *Zeiss Ikon Brücke*. It was produced through 1939 in modest quantities, perhaps showing that Zeiss Ikon was better at making cameras than at reading the marketplace. Total production is estimated at fewer than 2,000 pieces, against roughly 10,000 for the Biogon (prewar only) and around 8,000 for the Tessar 2.8cm.

The Herar

However, these are not the only 3.5cm lenses for the Contax system. Another one (the 3.5cm $f: 3.5$ Herar) is not found in any of the Zeiss catalogs or house organs and was rarely seen until a few years ago, after the borders with the Soviet Union opened. Nevertheless, the Herar's authenticity as a Zeiss product is well established, with patent literature dating to 1936. The Herar looks very much like the Orthometar, with a slightly larger front element befitting its greater speed. Hans-Jürgen Kuc, in his initial volume, *Contax-Geschichte*, Vol. I (1981), was the first to describe the Herar 3.5cm $f: 3.5$, basing his work on observations of a few samples and patent literature. Kuc reports that Sylvester Huber's patent for Zeiss, dating from late 1936, shows a five-element/two-group formula. While the reduction in air/glass interfaces (over the Biogon formula) was certainly an advantage before coating, the irony is that Zeiss was beginning to apply coating systematically to flare-prone designs about the same time, first to the Sonnar 5cm $f: 1.5$ and soon after to the Biogon 3.5cm $f: 2.8$.

All Herars reported fall into a single serial-number range (2641xxx), proba-



The four Zeiss wide-angle lenses for the Contax. Clockwise from the front: Tessar 2.8cm $f:8$, Biogon 3.5cm $f:2.8$, Biotar 4cm $f:2$, Orthometar 3.5cm $f:4.5$.
Photo: Barringer



The three 3.5cm lenses. Left to right: Biogon $f:2.8$; Herar $f:3.5$; Orthometar $f:4.5$.
Photo: Ghisetti

bly comprising 500 pieces. Ed Kaprelian's dating chart would place their construction in 1939, while the production numbers reported in *Zeiss Historica* 20/1 would suggest 1940. Of the 21 lenses listed in Barringer's database, 17 are in Contax mount, with 14 uncoated, 3 T-coated. Four samples, of which one is T-coated, are reported in a 39mm Leica thread mount; at least one of these was probably remounted. Coating seems to have been applied to randomly selected examples, but the

problem could lie in the accuracy of observation or reporting.

Why was the Herar made?

This discussion leaves wide open any explanation of why the Herar exists in the first place. By the time of its creation, marketing considerations could not have played a major role in the development and manufacture of a completely new lens. If sales price were a factor, then why was the Biogon maintained in volume production? More than



Depth-of-field scales on the three 3.5cm lenses shown on page 13. Left to right Orthometar, Herar, Biotar.
Photos: Barringer

3000 Biogons have serial numbers higher than 2641xxx.

The Herar design is inherently less flare-prone, as mentioned, but Zeiss was coating Biogons starting at 2672xxx, effectively canceling the technical advantage. And the 2/3 stop penalty compared to the Biogon made it somewhat less attractive and versatile.

The primary visible difference between the two is the relatively modest rear projection of the Herar compared to the steatopygeous Biogon. Could there have been a redesigned shutter, or even a reflex design requiring mirror clearance, in the works? Perhaps, but the

Orthometar already answered this objection.

And the most intriguing aspect of this lens remains completely unexplained. Essentially all known Herars have come to the West from the Eastern bloc in the last ten years. Evidence suggests that several hundred thousand lenses of all types, completed or in progress, with numbers running approximately from 2800xxx to 3000xxx, were spirited away from Jena to the Soviet Union as war reparations. The Herars however, predate those lenses. It makes no sense that an entire production run of a novel wide-angle design would have been

squirreled away for future use, but what other explanation comes to mind?

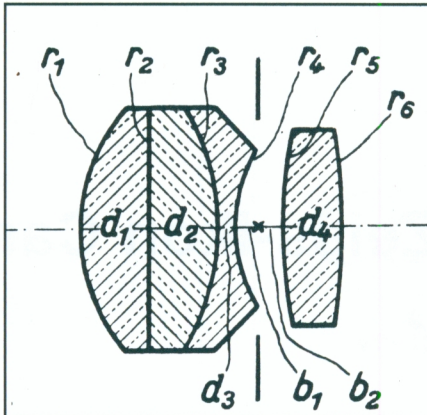
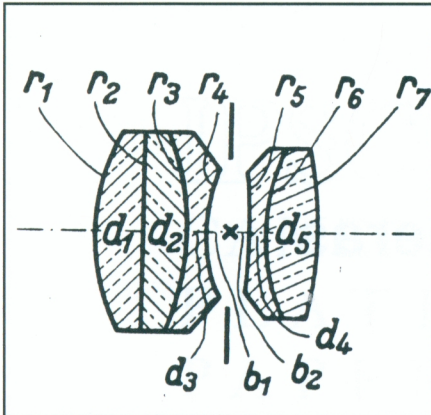
A 3.5cm Biotar

Recently, a new speed champion of the Zeiss wide-angle lenses has come to light: a 3.5cm $f : 2$ Biotar in Contax mount. No details are known about its construction but it is presumably an eight-element/four-group design similar to the 4cm $f : 2$ Biotar. The 3.5cm example, #2802xxx, is T-coated, dates from the late wartime period and was almost certainly shipped east as war reparations. Given the existence of this high-speed wide-angle lens design in the



Detail of Orthometar variations. Clockwise from rear: Normal configuration; preproduction version marked "C. Zeiss Jena"; early version in Biogon mount with "f: 2.8" marking on depth-of-field scale.
Photo: Barringer

The Herar 3.5cm $f : 3.5$, seen here in a close-up front view.
Photo: Ghisetti



Cross-section of the Herar 3.5cm f : 3.5 (left) and the f : 2.8 version, which was never produced. Drawings from H.-J. Kuc, *Auf den Spuren der Contax*, 1992.

The Biotar T 3.5cm f : 2.

Photo: Barringer

books, one wonders why we had to wait until the 1990's for the new Planar 35mm f: 2 for the G-series.

We will never know definitively what actually occurred during that distant period, so there is much speculative material in the foregoing, based on observation of a limited number of samples. As always your feedback, ideas, comments, suppositions, or theories, are most welcome.

The authors wish to thank Larry Gubas, who inspired this article and assisted in its preparation.

A Herar f : 2.8 mounted on a Contax II
Photo: Ghisetti



Rear view of a Biotar 3.5cm f : 2, showing the engraved six-digit number. Most Zeiss lenses, like this one, have a rear number that lacks only the "millions" digit of the full serial number.
Photo: Barringer



Some Unusual Zeiss-Ikon Cameras

Larry Gubas, Randolph, New Jersey

The Zeiss-Ikon family of companies was responsible for a great many unusual instruments over the years, and for this article I'd like to bring together a group of more-or-less rare cameras as a change from the usual run of Contaxes, Contaflexes, Ikontas, and so on that usually fills our pages. In approximately chronological order, they are the Ica Contessa from the early decades of the 20th century, military cameras made in the 1930's for use in the Second World War (with particular reference to a piece of equipment used on submarines), and the Tenaxes, models I and II, dating from just before the War and marketed briefly from the eastern zone afterwards. Then finally there is the Ibfaflex, made in the 1960's by Rollei but with a strong Zeiss-Ikon pedigree.

I learned about many of these through auctions, especially those operated by Jim Cornwall (a former ZHS member) in Cologne, Germany. Appropriate credits are given in the text.

Ica Contessa

I have always found that I never know the whole story about the Zeiss firms. I learn only little bits and pieces that give me a good part of the story but, later, I find out a little bit more.

I was aware that Ica (International Camera Aktiengesellschaft) was put together from a number of important

camera firms that were having troubles in the period 1908/9. After many years of searching here in the US, I could find out little about any of them. The only hint came from looking at the catalogs of German photographic auctions, where their wares could be identified and from which it was clear that these were no little insignificant companies. When Hüttig, Wünsche, Krügener merged with the small camera department of Carl Zeiss Jena named the Palmosbau in 1909, the new firm of Ica quickly became the largest camera manufacturer in Europe. It made cameras under their own trademarks but also for other firms, especially in Britain.

At first, Ica did not directly market their cameras here in the United States but rather went through an importing firm known by the acronym, IPSCO, which stood for International Photo Sales Corporation and was located at 235 Fifth Avenue in New York. I cannot tell you what happened to IPSCO but I do know that after the First World War it no longer represented Ica. That responsibility went over to a company then named Harold M. Bennett at 110 East 23rd Street. Bennett was listed as the US Agent for Carl Zeiss, and since Zeiss owned Ica, it was logical for him to be the agent for Ica as well. So he, too, produced photographic catalogs as had IPSCO.

I have two catalogs issued for Ica by Bennett (soon to be renamed Carl Zeiss, USA) and there is one clearly from 1925, which is one year before the creation of Zeiss Ikon and Carl Zeiss USA. It claims to be the first US catalog issued by Bennett for Ica. Yet my second catalog is clearly an earlier work, or so it appears based on the models exhibited. Well, this is where it gets a bit strange. This earlier catalog is named "Ica Contessa Cameras" and yes, it must be a number of years before the 1925 catalog. Since Contessa and Nettel had only merged in 1919 it is later than that. Yet I have a number of Contessa Nettel catalogs from 1921, 1922 and 1923 that list George Gennert, with locations in Chicago, Los Angeles and Seattle as well as a main office in New York., as "Sole Agents for USA, Canada and Cuba."

Well, thanks to Internet auctions, I have found yet another puzzlement. In October 1999 I saw a plate camera offered at auction that had both names, Ica and Contessa, on the rim-set Compur shutter. Now since Ica was in Dresden and Contessa-Nettel was in Stuttgart, and Deckel who made the Compur shutter was in Munich, there are opportunities for confusion. The standard trademark for Ica cameras was a five-pointed star and the name Ica usually appears on the left side (when you face it) of the

IPSCO CAMERAS PLATES PAPERS



International
· PHOTO · SALES · CORPORATION ·
235 Fifth Avenue · New York

IPSCO Catalog, 1913. The International Photo Sales Corporation was the agent for Ica in the US at that time.

Ica Contessa Cameras



Harold M. Bennett
U.S. Agent
110 East 23rd Street
New York

Ica Contessa Catalog from Harold M. Bennett (undated). Bennett was the US agent for Carl Zeiss after World War I.

rim-set dial and Dresden appears on the right. On this camera, the Ica is on the left but Contessa is on the right, as I saw from the auction site's digitized image, which unfortunately cannot be reproduced here. The lens is a Carl Zeiss Dominar with a serial number of 528 489, which would make it an item from 1922.

In 1995 I met with David Jentz of the Retina Historica Society, and his research had a clear indication that August Nagel, who had been the head of Contessa Nettel, had been offered the position of Director of Ica by Carl Zeiss. This was some years before the merger creating Zeiss Ikon in September 1926. He had turned the position down.

Ultimately, his partners in Contessa Nettel sold more and more of the firm to Carl Zeiss (to pay for the Tessar lenses that they used), and so he was merged into Zeiss Ikon in 1926 whether he wanted or not. He still held a significant ownership portion of the firm and so he went with Zeiss Ikon for two years before selling his share back to Carl Zeiss in 1928. He took his proceeds and opened his own firm back in Stuttgart, a firm that he eventually sold to Kodak but managed fairly independently.

Clearly, there are things going on with these two firms prior to 1926 as these facts show, but I do not have the full answer. (By the way, I did not bid on the camera since I was entranced

with another Zeiss item at the time and my wife had me on a strict budget. So if one of our members has it, you got something fairly unique. If you have records of some anomalies such as this, please let us know since the records of these firms are gone and never to be reassembled. It is only through our observations that data such as these can be shared and documented.

Military Contaxes

Whereas Leica cameras had special markings and coloring (greenish gray) and a K placed on their military production, seemingly there were no special editions of the Contax cameras used for military purposes. Usually a standard



A naval Contax II, with the swastika and naval eagle markings on the rangefinder housing. (From the *Auktionshaus Cornwall* catalog, Cologne, 1990)

A naval Contax III with the "naval property" mark (*Kriegsmarine-Eigentum*) marking. (From the *Auktionshaus Cornwall* catalog, Cologne, 1990)



Contax II or III was taken and marked as military property. The two samples that we show are typical, although the markings will change from organization to organization with a numerical designation based on property or contract numbers.

Experience suggests that the cameras were basically the same as a commercial camera, with the possible exception of special lubricants developed for especially hot, cold or moist locations by Alexandar Smakula.

Zeiss Submarine Camera

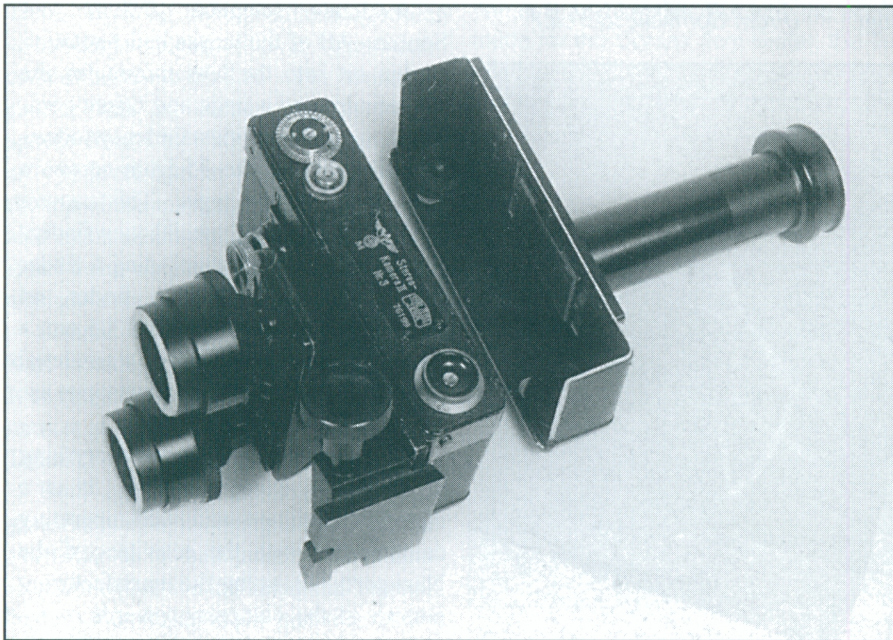
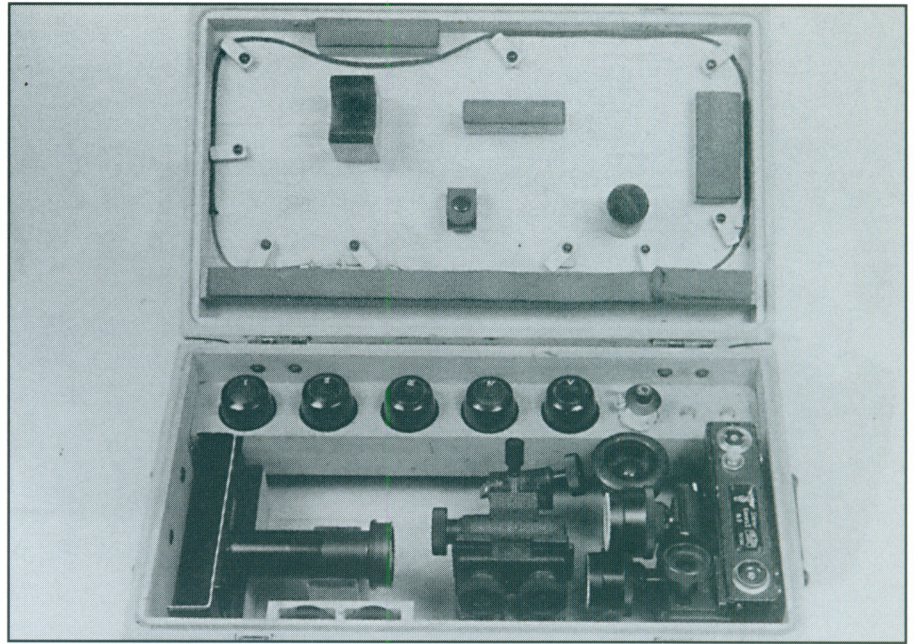
An exception to the foregoing is a very unusual instrument made by Zeiss in the 1930's for use on submarines. I found it listed in the catalog of the October 1990 Cornwall auction, held twice each year in Cologne.

The binocular collecting branch of Zeiss Historica has long been fascinated by the exceptional binoculars that were made for use on the German World War II submarines. Well, if they had Zeiss binoculars, you know that they had to

have a Zeiss camera as well.

This one is actually a Zeiss hybrid: part Zeiss Ikon but mostly Carl Zeiss. Based on the markings and the fact that it has a Contax I body, it would seem to be a product of about 1936 or 1937. The purpose of a submarine is quite clear, it is to sink enemy vessels. Like all military activities, a submarine would want a record of the ships that it had become involved with and to document its successes. That is the purpose of this camera and in true Zeiss scientific style, it

Zeiss "submarine" camera from around 1936 or 1937, in its fitted wooden box. Note the five Bakelite film canisters and a single take-up spool. In the top of the case is an extremely long cable release. (From the *Auktionshaus Cornwall catalog*, Cologne, 1990)



The submarine camera and its special viewfinder back. The camera had no rangefinder, nor was the viewfinder in the camera body intended to be used; this "telescope" back was the sole viewing device. (From the *Auktionshaus Cornwall catalog*, Cologne, 1990)

would have to be a stereo image.

It is thought that after a target was sighted, and while the submarine was still submerged, the captain would order a picture to be taken using the long sight on the special camera back. There was probably a special attachment on the periscope to permit the camera to be attached. The image was then used to identify the ship and to be used as documentation after it was hit with a torpedo. A second device associated with the camera is yet another Carl Zeiss prod-

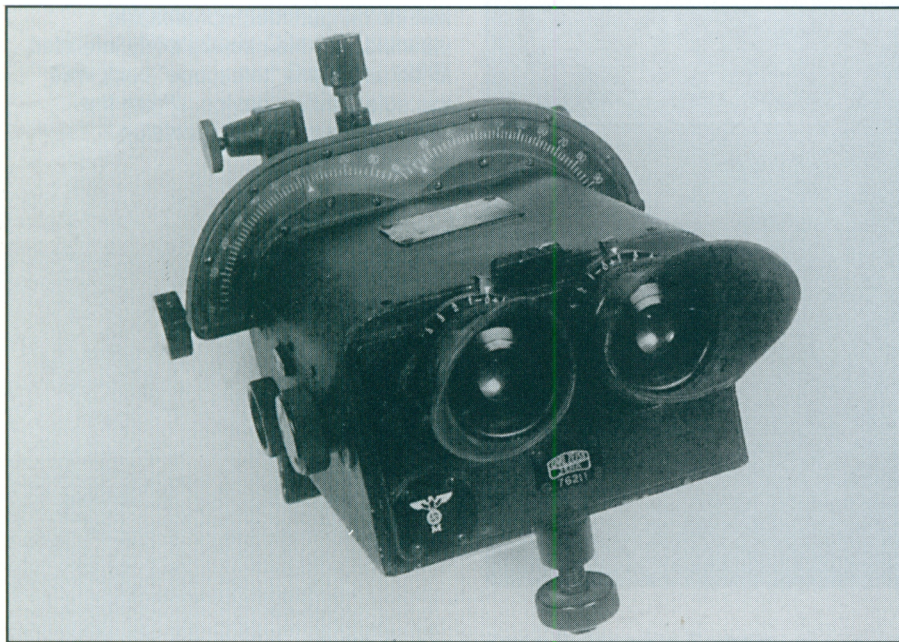
uct. It is the "Auswertegerat" or evaluating instrument, used to view the negatives (positives would be too difficult to process and were not really necessary) in 3D and evaluate it as a target. Remember that it was not a wise thing to keep the periscope up for a long time since it could be detected by lookouts on the target ships.

The research done by Jim Cornwall indicates that it was among the last (if not the last) Contax I known to have been made. How many of these survive

today? Well, no second one is currently known. We do know that a number of German submarines surrendered after the war, but it is likely that the American and other allied militaries impounded all of the interesting devices for themselves and took them apart to see what made them tick. Possibly, they were never able to put them back together. More likely, what few samples there are now sitting in some government warehouse next to similar Zeiss military optical devices that were known to have



Close-up of the submarine camera, showing the Kriegsmarine symbol, the Carl Zeiss trademark, and a serial or contract number. (From Cornwall, loc. cit.)



Viewing device for the submarine camera, with individual focusing eyepieces and a scale to use the stereo effect to measure distances. (From Cornwall, loc. cit.)

disappeared. This item sold for 15,000 DM in 1990 and is now in a private collection.

Tenax rapid-advance cameras

The two Tenax cameras were vastly different from any other Zeiss Ikon camera. To begin with they used 35mm film but in a one inch square format or 24 x

24 mm. They were the only pre-war Zeiss Ikon 35mm cameras that did not use a metal focal plane shutter but rather Compur shutters. In addition they each had a quick-action down-stroke lever to advance the film.

Thanks to correspondence with Hubert Nerwin, the designer of these cameras and the Contax II and III, I

have been able to piece together something about their origins.

The Tenax II appeared in mid-1938 and was crafted, from "the first line on the drawing board to the last line," by Nerwin. As with all Nerwin-designed cameras it was compact and easy to use, and it fit beautifully in your hand. Nerwin had worked with the Deckel company on a special Compur shutter (1 to 1/400 of a second) that was not fastened to the lens but was instead in the body of the camera. The lenses were interchangeable, and there were two versions of the normal lens at 4cm; Merté's $f: 2.8$ Tessar, which had not yet become the standard on the Rolleiflex, and a new Sonnar $f: 2$.

Merté also contributed a wide-angle 2.7cm Orthometar at $f: 4.5$ and Bertele a moderate telephoto 7.5cm $f: 4$ Sonnar. All of the lenses had a rotating wedge set into the lens mount for the rangefinder and a large and bright combined rangefinder/viewfinder window. The filters were the 35.5mm screw-in and 37mm slip-on type. This camera also had a series of special viewfinders for the unique lenses including a finder mask, wide-angle slip-on finder, an Albada finder covering 4 and 7.5 cm, a special Contameter and a waist-level prism finder. All of these accessories are now extremely rare.

This camera had nearly everything going for it except timing. It is a superbly designed and well operating camera, but with the activities of the Nazi party changing the manufacturing pattern of the company towards munitions production, there were too little in available production facilities. Thanks to Hitler, there was also a distinct lack of customers, since he had chosen to invade or alienate or provoke nearly all but the Italians and the Russians by this time. This camera was ready to advance to the next stage, as Nerwin had already designed a version with a built-in light meter. There are many features that would have been successful after the war, and in some ways the design is similar to the 1950's Contessa 35. However, it would have been too complicated to begin manufacture of the

Tenax in Stuttgart, when they were in quick-start mode after the war. All of the old 35mm lines had been produced in Dresden, which was heavily bombed. Note that it took nearly six years to bring out the almost completely designed Contax IIa.

The goal of the firm to embrace every market segment was addressed by the Tenax II, with particular regard to the innovations of the Robot camera (whether intentionally or not). The inch-square format and the rapid-advance levers were now covered, and the camera was a far more commercial design than Berning's Robot.

The Tenax I came out about six months later, and was the last 35mm model from the firm before the war. It was much smaller and simpler than the Tenax II, with a non-interchangeable wider-angle 35mm Novar lens that closed down to $f:3.5$. The Compur shutter was an earlier version (with speeds from 1 to 1/300 of a second) and an eye-level optical finder built on to the top of the camera. This little camera also has a small unique twist; the filter is not a slip-over or a screw-in but rather a screw-over at 18.5mm size.

Conrad Wachtler with his assistant Karl Wunderlich designed this camera. It covered the less expensive part of the market at \$60, compared to \$207 for a Tenax II with the normal Sonnar lens.

Both cameras were excellent progressive steps in design but became available at a bad time. The East German collective did bring the Tenax I back to the market in the post-war years but for a very short time, with an upgraded coated Tessar lens. It is my suspicion that these came from pre-war parts.

These were innovative and well crafted cameras that should have survived but were lost to the actions and results of war.

The Ifbaflex

How would an Ifbaflex fit into your Zeiss collection? It was a camera made by Rollei, either for a short period of time or as a proposed model that never went to the market. It was for all intents



Tenax II and lenses. But why the accessory viewfinder? This 4cm finder was made for the Contax 4cm Biotar; the Tenax II has a 4cm finder built in. (Cornwall)



The Ifbaflex, a copy of the Icarex (model 706) manufactured by Rollei after the closure of Zeiss Ikon. (From Cornwall, loc. cit.)

and purposes a Zeiss Ikon 706, which was the last major camera model sold by Zeiss Ikon. You may find it hard to see in our picture but a model number of M 102 appears below the Ifbaflex trademark.

This model is engraved on the bottom plate, "Made in Germany by Rollei." It has the same M42 threaded

lens that was used on many Icarex models including the SL 706. The lens is an Ifbagon 50mm $f:1.8$, made by Rollei under license from Zeiss. It is probably a Planar or Ultron formula.

So it would fit right next to the SL 706. Now all I have to do is find one — and a SL 706 too!

The Jenaflex

Larry Gubas, in association with
Klaus Rademaker

The use of the proud Carl Zeiss Jena trademark did take some strange turns during the Russian occupation and in the years of the East German collectives. At first, the trademark was used strongly to show the continuity to the quality of the pre-war years. Then came the sudden move to the collectives, which used strange names such as VEB Mekanik with no connection to the past. There followed the realization that the lost trademarks were very valuable to attract cash paying customers, and legal tests flew for years. Many governments refused their use of those past trademarks, while others accepted it. The 1950–60 East German Werra cameras were not always trademarked as Carl Zeiss Jena products. Others had no trademarks, and lens trademarks were abbreviated to one or two letters, such as T for Tessar.

In the 1970's, an agreement struck between the two Zeiss firms straightened things out, depending on the destination of the goods. Then, in the early 1980's, things became confusing again when the East Germans contracted their lens trademarks to a Japanese firm while the West Germans had given a more restricted license to Kyocera Contax for their lenses, with strict quality control and supervision. At about this time, the cameras pictured in this article were made, with an astonishing coupling of different trademarks

I discovered one of these cameras on that new standby, the Internet, when it was offered for sale. The picture was



Two Carl Zeiss Jena “Jenaflexes,” the AM-1 above and the AC-1 below.



Original packaging for both cameras: the AM-1 to the left, the AC-1 on the right. With the AM-1 is a now-useless Carl Zeiss Jena guarantee card, and both cameras have their instruction books. The photo of the AC-1 affords a better view of its four shutter-speed settings.

astounding and provocative. These were the elements: A Carl Zeiss Jena lens-cell trademark on a modernistic leather-like textured rubber coating, a new camera trademark, "Jenaflex," a big electronic emblem, a Carl Zeiss Jena $f:1.4$ 50mm lens marked only with a P, and a close resemblance in camera style to the Kyocera Contax. I contacted the seller, who turned out to be the Klaus Rademaker whose picture of the rare Ernst Abbe trademarked lens was published here a few issues ago. Klaus was happy to forward the associated pictures to me as well as a Praktica Photography Press release on the camera in English.

In spite of the Jena trademark, the press release (Praktica Photography 1986 no. 4) extols the virtues of its Dresden design and the name of Praktica as its heritage. It traces its history back to the pre-war Exakta and

1938 screw-mount Praktica. Since it was destined for the British market, the price for the camera was quoted in sterling, £120. The model number is AM-1, and the features are fully automatic TTL metering, electronic lens control, shutter speeds from 40s to 1/1000s, automatic and manual controls, LED speed indicator and "evidence of aperture" in the viewfinder, film speeds from 12 to 2100 ASA. A full line of lenses was available from three different manufacturers, Pentacon, Zeiss and Sigma, and there was an available motor film advance. It was clearly a showpiece for the fiftieth anniversary of the 35mm SLR, based on the date of the 1936 Exakta, and was quickly recommended to the collectors' market.

Now Klaus surprised me with a picture of a second camera, almost identical in appearance except for the model

number AC-1! There are but a few differences discernable but they seem to be significant. First, the shutter speed indicator is much simpler, with only four settings: B, 60, Auto and Check. The auto is in green and the others are in standard chrome. There is one fewer button on the top of the camera, where the AM-1 had one just by the "e" of electronic. Everything else seems to be identical. The only thinking that I have is that this AC-1 is a totally programmed camera with next to no manual functions. The camera also has a named lens, a $f:2.4$ 28mm Prakticar. Neither lens seems to have any visible serial numbers.

Keep your eyes open for other surprises and let us know when you see them. For this time, I give many thanks to Klaus Rademaker for both for pictures and data.

ZHS Annual Meeting

The Zeiss Historica Society held this year's Annual Meeting on 8 April at the Fleetwood Museum of Photography in N. Plainfield NJ.

The Museum's facilities were offered by Curator and Director Nick Ciampa and his second-in-command George E. Helmke. Several ZHS members, including the late E. K. Kaprelian, Archivist Larry Gubas, and Secretary/Treasurer Maurice Zubatkin have participated in the creation and development of the Museum. We are very grateful to the Fleetwood for their hospitality and anticipate a return engagement. The Museum is located in North Plainfield, NJ (just off Route 22), and can be contacted at (908) 756 7810 for further information and directions.

Photographs were submitted by ZHS members Carl Ian Schwartz, Harry Soletsky, Sam Sherman, Michael Kersten, and John W. Spicer Jr. Space limitations prevent our use of any beyond the four by John Spicer shown below. Spicer tells us that he used a Contax G2 with a Carl Zeiss G-Planar $f: 2$ 45mm lens, a TLA 280 flash (for the indoor pictures, bounced), and Ilford XP-2 Super 400 ISO film.



The Fleetwood Museum of Photography, located on Greenbrook Road in North Plainfield NJ.



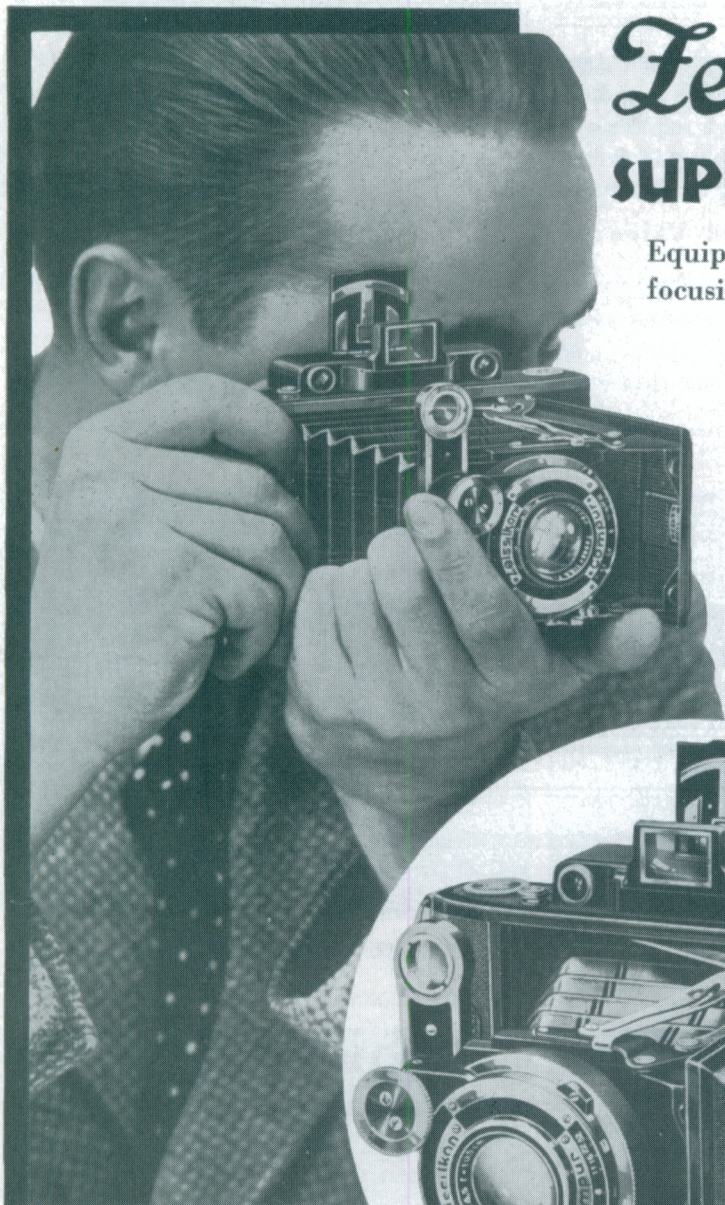
A small group of the approximately 35 members who attended the Annual Meeting.



President Charles Barringer (left) with keynote speaker Kornelius Fleischer of Carl Zeiss, Oberkochen.



Mary Brosius of Contax Technical Support, Kyocera, who also spoke at the meeting.



Zeiss Ikon

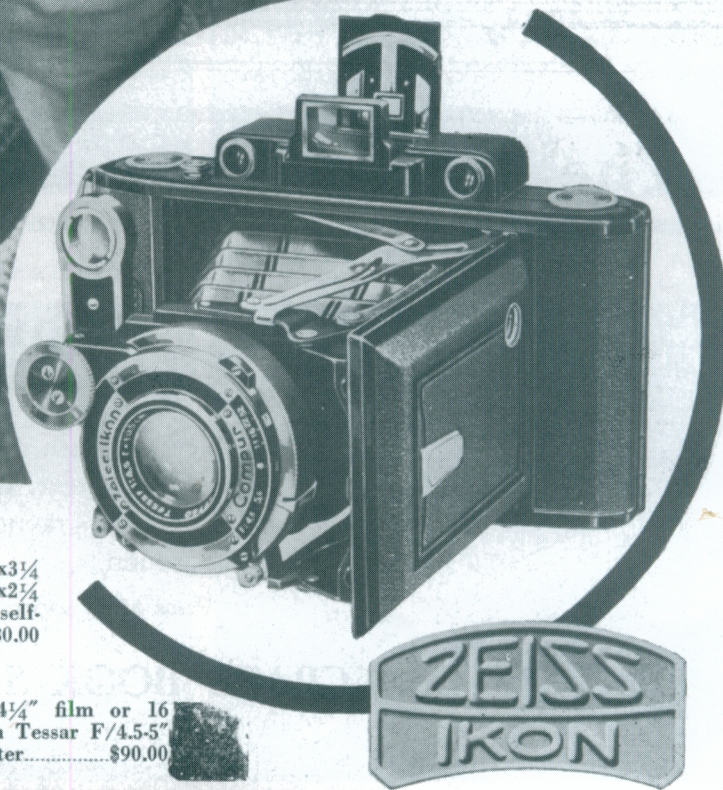
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