ZEISS HISTORICA

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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.

Address all inquiries to:
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ON THE COVERS

FRONT COVER: Hensoldt headquarters in Wetzlar, Germany, September 1992.
BACK COVER: Wall Street Journal article, January 4, 1967, details the division between Zeiss East and West.

ILLUSTRATION SOURCES

Front cover, the editors. • Back cover, courtesy Charles Gellis. • Aktivist diesel, Joachim Arnz. • Punktal ad, Zeiss Oberkochen. • Rollei brochures, courtesy R.G. Pins. • Tenax II illustrations, Mead Kibbey. • Jena binoculars and Siegfried Kessler photo, Nick Grossman. • Hensoldt factory and Contax I photo, the editors. • Blendar photo, Maurice Zubatkin.

PRESIDENT'S LETTER

With this issue of the Journal, the President has been offered a chance to fill some space inside the covers, and not just in a letter. I guess that this forum is more visible, dignified, or permanent, than the alternatives — whatever the reason, here is the first such Presidential letter.

It shouldn't come as too much of a surprise that in the Journal of the Zeiss Historica Society there isn't much news about current events and developments. And given that Zeiss no longer maintains much visibility in amateur and consumer fields (at least in the USA), many of us are quite unaware of the fact that the Zeiss group is still very much alive and reasonably well, given the drab economic situations of the industrialized countries which are its primary markets.

So I thought I'd bring you up to date on a couple of significant new developments at Zeiss, as publicly honored by a prestigious American journal, Research & Development. R&D annually publishes a list of 100 new products and inventions distinguished by their technical innovation and creativity. Last year Zeiss copped not one, but two of these awards to add to their collection.

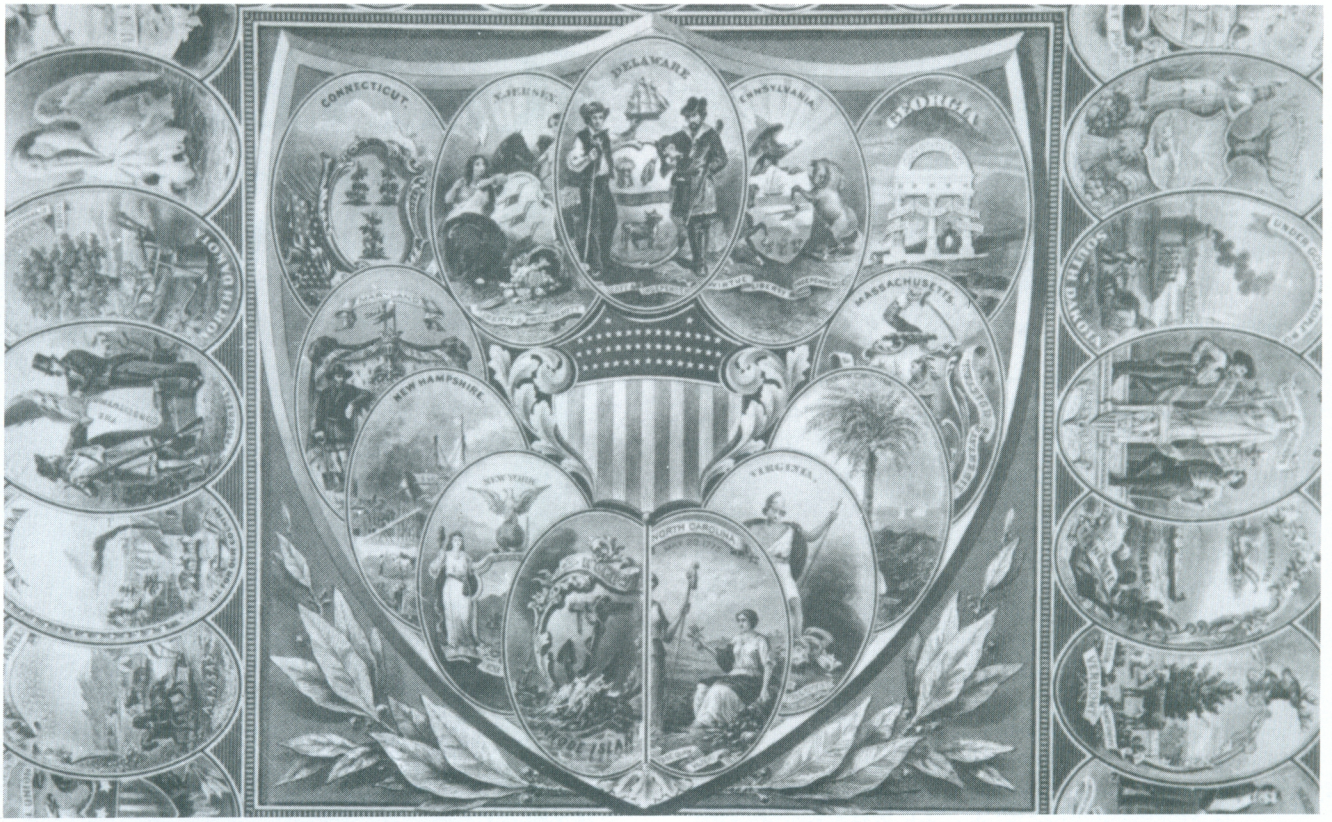
One award recognizes a breakthrough in transmission electron microscopy which allows 3-dimensional reconstructions and stereo imaging of thick specimens. Not being involved in this field, I had not known this was a problem, but as a stereo/3-D enthusiast, it sounds interesting, and I can see how it would be useful in a scientific or industrial situation. I find it particularly significant that Zeiss maintains its position at the leading edge of this technology, which it was instrumental in creating.

The second award recognizes a product somewhat more likely to be recognized by the majority of our members - a new stabilized 20x60 binocular. The new technology represents nothing less than a quantum leap forward in binocular functionality - the stability of the image is independent of the stability of the platform or of the user.

While not exactly destined to become a household staple at $5,000 or so per copy, these binoculars are aimed at the huge industrial/military market. In situations where results are calculated in human lives or some equally valuable measurement, the price is a relative bargain. What's particularly amazing is the relative simplicity of the concept, with no gyros or external power required. As we all know, the really elegant inventions are the most obvious ones - but it takes real genius to hatch and develop the simplest ideas.

I'll close by mentioning that the membership application form enclosed herewith is intended to make it easier for each one of you to sign up a new member. I hope that this new form gives a better idea of what we are and do, as well as the benefits of membership. This should make it easy to give it to a friend who is interested in Zeiss—all you have to do is remember to do it. Feel free to copy the form or to ask for more, and if offering a photocopy of an article from the Journal would make it easier to sign someone up, please go ahead, within reason, of course. As I've said many times, better awareness of the Society is the key to increasing membership, and the larger our membership, the better we can fulfill our mission.

Charles Barringer, Jr.



A sample of the work produced by the 40mm f2 Sonnar of the Tenax II with #1339 Contameter and closeup lens attached. Test target is from the US Bureau of Engraving and is shown here actual size.

NEW WORK FOR AN OLD TENAX

Mead Kibbey, Sacramento, California

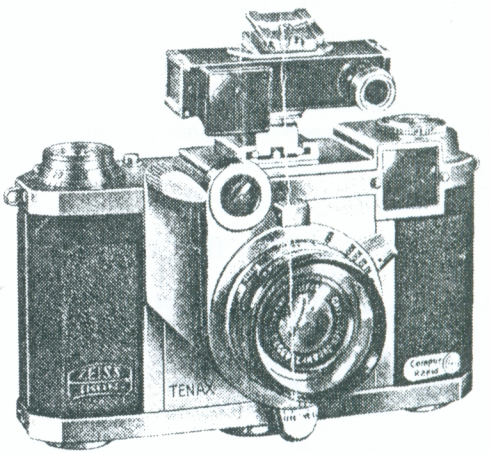
The incredible quality of prewar Zeiss lenses was recently made clear to me again. I've lately been involved in collecting and cataloging 19th century photographs of California, specializing in the work of Alfred Hart of Sacramento. Hart published 364 numbered stereo views of the building of the Central Pacific Railroad. He started the project in Sacramento in 1863 and completed it in Promontory, Utah in May 1869.

Recently, I saw a full set of contact prints of the uncropped right-hand images from Hart's series in a San Francisco museum. The published contact pairs are about 3 1/2" square, but the original images were about 5" square. The unpublished edge portions of the original prints disclose much new information about the locations and surroundings of the scenes. Occasionally there is even a tiny notation at the extreme edge of the original, giving a date or location.

The museum agreed to let me photograph the full series, but the work had to be done in two days. While I usually use a 6x9 cm Linhof for copying, doing the job with the Linhof would have involved exposing over 30 rolls of 120 film using a 6x6cm roll back. Thirty-five millimeter seemed a much better way to go.

I still own a 1938 Tenax II with the #1339 Contameter — a duplicate I kept when my collection went to the California Museum of Photography in 1986. The camera has a 40mm f2 Sonnar lens, and makes 50 square 24x24mm negatives on a regular 36 exposure roll. Using the 20cm auxiliary lens, the field covered is 5.32"x5.32" — perfect for 5"x5" subjects.

The final photos were made on T-Max 100. While the result is not quite up to the standard of the Contarex 50mm S-Planar, the images proved to be perfectly adequate for 7" square enlargements. Not bad for an outfit sold 54 years ago!



Tenax II with Contameter #1339 attached.

To a dedicated image collector, finding the full Hart prints was the equivalent of finding the prototype of every Zeiss Ikon camera in one place. There is even a parallel between Hart and Zeiss. All of his original negatives were lost in the 1906 San Francisco earthquake — just as so much original Zeiss material was lost in World War II.

DIESEL ENGINES FROM ZEISS JENA

Joachim Arnz, Jena, Germany

To the Zeiss enthusiast familiar only with the precision optical products of Zeiss, it may come as something of a surprise to find that Zeiss also tried its hand at other products. But this was indeed the case.

In the mid-fifties, Zeiss in Jena received an order for diesel model engines. The engines were to be manufactured in several variations for use in model cars, airplanes, and ships, as well as for stationary use. All would increase Zeiss participation in the postwar consumer products market.

These small two-cycle diesels received the name of "Aktivist" — a name then used to honor outstanding workers in the East German Republic.

Four variations of the Aktivist were designed, as described below. All were built with typical Zeiss precision. They were marked with the "Q" which symbolized products of the highest quality in East Germany. Fit and finish were excellent.

The engines were extremely reliable because of the precise conditions under which they were produced. The close fit of cylinder liner and piston assured their high performance.

All four variations shared several design features:

*A crankcase of pressure-cast Hydronalium (AlMg).

*A Dural (AlCuMg) heat-pressed connecting rod.

*A cylinder liner and counterweights of hardened tool steel.

*A piston cast from Perlit.

*A crankshaft that turned in two precision ball bearings.

All four versions of the Aktivist shared the same internal dimensions: a displacement of 2.46cc, a bore of 15.5mm, and a stroke of 13mm. Weights ranged from 130 to 140 grams.

Two types of valves were used. Engines fitted with a membrane valve would operate in any position, which made them suitable for the aerobatic maneuvers of model planes. A rotating flat disc valve was used in engines which would not be subjected to such maneuvers.

Four models of the Aktivist

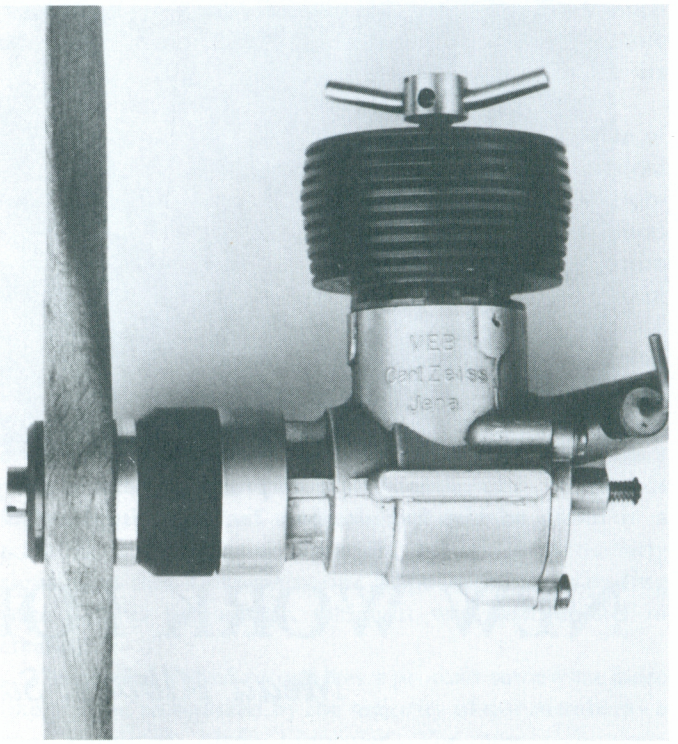
Type	RPM range	Overall dimen.(mm)	Cylinder head diameter	Valve type	Price (in DM)
II	12-17,000	80x80x42	37mm	Disc	48.80
III	12-19,000	78x78x42	37mm	Membrane	50.30
IV	12-17,000	80x80x42	29mm	Disc	49.60
V	12-19,000	78x78x42	29mm	Membrane	51.30

Each type of Aktivist had a different use:

Type II was designed for free-flight plane models, car models, and ship models (with either air or screw propulsion). It was also used for instructional purposes.

Type III was for both free-flight and control-line plane models, as well as ship and car models.

Type IV was for free-flight plane models used in competition. Here, a high power-to-weight ratio was important, as well as small overall dimensions. Type IV was also used in air-propelled ship models.



The Aktivist II with propeller attached. (Shown approximately 90% of actual size.)

Type V was for high-performance control-line plane models in aerobatic and speed contests.

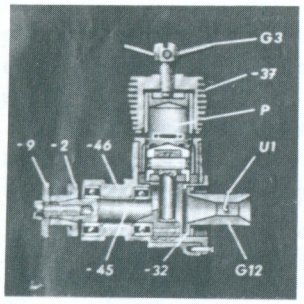
Fuel for all models was composed of 1.5 parts oil (motor or racing oil), 3 parts ether (dehydrated, sulphur ether if possible) and 2 parts kerosene. These were only suggested proportions, and were adjusted to achieve optimum ignition qualities and reliable performance in varying air temperatures. The proportions of a particular blend were treated like state secrets.

Starting an Aktivist was often a tortuous process which required much patience. One had to spin the propeller with one hand while partially covering the air intake with the other. At the same time, the compression lever and the needle jet had to be adjusted. If you were lucky, the motor started, and unless you were very quick, you were awarded with a solid whack on your finger from the propeller.

Any difficulties would be quickly forgotten when your plane was finally launched, and childhood dreams of flight came true.

The editors' thanks to member Claus Stegmann, who provided a translation of this article from the original German.

Schnittschema des „Aktivist V" mit kleinem Zylinderkopf und Membransteuerung



U 1 Düsennadel mit Rastschieber
- 2 Nabe
G 3 Druckschraube mit Knebel
- 9 Andruckplatte
G 12 Ansaugstutzen mit Deckel und Membrane
- 32 Membrane
- 37 Zylinderkopf
- 45 Kurbelwelle
- 46 Gehäuse
P Laufbuchse mit Kolben, Pleuel und Gegenkolben

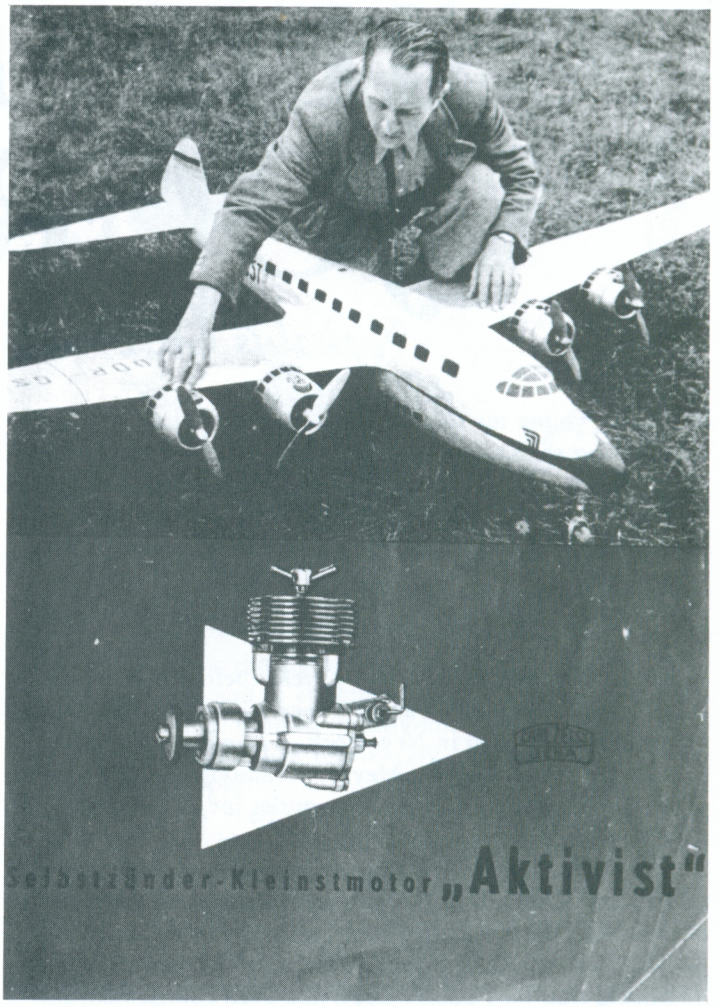
Die „Aktivist"-Motoren laufen mit einer Mischung aus Petroleum, Äther und Öl. Ausführliche Gebrauchsanleitungen werden jedem Motor beigefügt. Sie können auch gesondert angefordert werden.
Zubehörteile (Tanks, Antriebswerke für Automodelle, Wasserfahrzeuge usw.) werden zweckmäßigerweise von Spezialfirmen für Modelltechnik bezogen. Anschriften innerhalb der DDR stehen zur Verfügung. Bezüglich der Anfertigung von Modellen selbst verweisen wir auf die einschlägige Fachliteratur sowie auf die Fachzeitschriften.

VEB Carl Zeiss JENA
Vertriebsabteilung Diverse Erzeugnisse

Drahtwort: Zeisswerk Jena Fernsprecher 3541

Druckschriften-Nr. **75-031-1**

V 15 34 Ag 10 1336 56 III



In unserem Zeitalter der hochentwickelten Technik kommt dem Modellbau vornehmlich von Fahrzeugen eine besondere Bedeutung zu. Er ermöglicht dem technischen und sportlichen Nachwuchs, eigene Erfahrungen anhand von funktionstüchtigen Modellen in vereinfachter Weise, ohne den verwirrenden konstruktiven Aufwand der Vorbilder, zu sammeln und das Wesentliche technischer Zusammenhänge zu verstehen. In der schulischen Arbeit wiederum werden Modellbau und wirklichkeitsnahe Demonstration im zunehmenden Maß zum wichtigen Bestandteil der polytechnischen Bildung.
Aber nicht nur für die angehenden oder erfahrenen Leute vom Fach sind Fahrzeugmodelle hervorragende Anschauungsmittel, die gleichzeitig Anregung und Entspannung bringen, sondern für jeden, der für das Problem der Fortbewegung und des Erreichens hoher Geschwindigkeiten aufgeschlossen ist – und wer wäre das in unserem motorisierten Zeitalter nicht? Mehr und mehr wird die Modelltechnik Allgemeingut, weil der Ablauf der technischen Vorgänge auch vom Laien gut beobachtet werden kann.
Auf Anregung und in ständiger Zusammenarbeit mit den maßgeblichen Stellen für Modelltechnik haben wir unsere Hochleistungsmodell-Dieselmotoren „Aktivist" in vier Ausführungen nach dem neuesten Stand für Flug-, Schiffs- und Automodelle entwickelt. Es sind Präzisionserzeugnisse von Zeiss-Qualität, denen das Prüfzeichen verliehen wurde, elegant und sauber in der Ausführung, von geringem Gewicht und kleinsten Abmessungen. Ihre besonderen Vorzüge sind sichere Einstellung, zuverlässige Leistung durch feinmechanische Serienfertigung unter sorgfältigster Kontrolle. Hinsichtlich der Kompression nehmen die „Aktivist"-Selbstzündermotoren eine Sonderstellung ein. Die äußerst genaue Passung von Laufbuchse und Kolben gewährleistet günstigsten Leistungsgrad bei Sparsamkeit in Anschaffung und Verbrauch. Vom Deutschen Zentralinstitut für Lehrmittel sind unsere „Aktivist"-Motore als Lehrmittel für den Gebrauch in den außerschulischen Arbeitsgemeinschaften zugelassen.

Sämtliche Ausführungen:

Kurbelgehäuse:	Hydronalium-(AlMg) Druckguß
Pleuel:	Dural (AlCuMg), warm geprägt
Laufbuchse und Gegenkolben:	Spezialstahl, einsatzgehärtet
Kolben:	Perlit-Guß
Kurbelwelle:	in zwei Präzisionskugellagern laufend

	Hubraum in ccm	Abgerundetes Gewicht in g	Mittlere Leistung in PS	Drehzahlbereich in U/min	Abmessungen (Höhe, Länge, Breite) in mm	Zylinderkopf-ø in mm
Aktivist II[1])	2,46	140	0,34	12000-17000	80 x 80 x 42	37
Aktivist III	2,46	140	0,36	12000-19000	78 x 78 x 42	37
Aktivist IV	2,46	130	0,34	12000-17000	80 x 80 x 42	29
Aktivist V[2])	2,46	130	0,36	12000-19000	78 x 78 x 42	29

	Bohrung in mm	Hub in mm	Steuerung	Verwendung
Aktivist II[1])	15,5	13	Flachdrehschieber	Freiflugmodelle, Automodelle, Schiffsmodelle mit Luft- und Wasserschraubenantrieb; **besonders auch für schulische Zwecke geeignet**
Aktivist III	15,5	13	Membrane	Frei- und Fesselflugmodelle, Automodelle, Schiffsmodelle mit Luft- und Wasserschraubenantrieb
Aktivist IV	15,5	13	Flachdrehschieber	Freiflugmodelle für Wettbewerbe, bei denen es auf ein günstiges Leistungsgewicht und kleinste Abmessungen ankommt, Schiffsmodelle mit Luftschraubenantrieb
Aktivist V[2])	15,5	13	Membrane	Hochleistungsflugmodelle für Fessel-, Kunst- und Rennflug

Luftschraube aus Holz, Länge 230 mm, Steigung 10 cm, für alle Ausführungen passend. Ersatz- und Einzelteile auf Anfrage. Verschleißteile, wie Membranen und Düsennadeln, stets vorrätig.

[1]) Abbildung s. Vorderseite
[2]) Schnittschema s. Rückseite

Pages from 1956 brochure describing the Aktivist motors.

SIEGFRIED'S JOURNEY

Nicholas Grossman, Rockville, Maryland

In 1936, a young man arrived at Carl Zeiss in Jena to begin his training as an engineer. Little did he know what fate had in store for him. Here's the story of Siegfried Kessler's brilliant journey that began in Jena, continued to Oberkochen and brought him to Carl Zeiss, Inc., New York.

Zeiss Established in New York

Before the turn of the century, years before Kessler had even decided to become an engineer, Carl Zeiss Jena had well-established itself in New York. A number of American firms acted as their dealers, Meyrowitz among them. (At this time, the most important foreign outlet for Zeiss lay in St. Petersburg, Russia's capital.)

After World War I, Mr. Fischer, a member of the Board of Management, in charge of finance and marketing at Zeiss, decided that Zeiss should have their own representatives in all major countries. But a problem stood in the way.

During that war, Zeiss's assets had been confiscated, and the legal ties, such as the one with Bausch & Lomb, were still unresolved. To skirt this issue, Zeiss set up their own national sales representation in 1919, Bennett & Co. The office operated out of 155 West 23rd Street, New York City, with Mr.Harold M. Bennett, a Carl Zeiss Jena employee.

Finally, in December 1925, Carl Zeiss incorporated its own subsidiary in New York, and Carl Zeiss, Inc. New York became a reality. Dr. Karl Bauer of Germany became its first president. From his office in New York City at 485 Fifth Avenue, he maintained contact with his two agents: one in Chicago, who covered the Central US, and the other in Los Angeles, who covered the West.

Major Upheavals

When 1941 events forced major upheavals, the US Custodian of Alien Property appointed Dr. Bauer the trustee of Carl Zeiss, Inc. New York. Only in the US could such an arrangement take place, since Bauer was a German citizen. (Not until 1947 did he become naturalized.)

At this time in Jena, May 1941, Kessler was told that he was packing his last shipment to New York. They crated as much as possible because this load was going to New York via Russia and Japan. Kessler and Bauer were happy that the shipment was torpedoed. Soon after, Kessler also learned that his country needed him. He became a soldier.

While Kessler was in the Army, Bauer at Carl Zeiss Inc., New York remained operative during WW II, and continued to transact business after the war. After selling all of the imported merchandise on hand, Carl Zeiss, Inc. started to manufacture precision measuring instruments, and continued to provide service. Nevertheless, by 1947 the number of employees declined.

POW Siegfried Returns to Jena

When Kessler returned to Jena from a Russian prisoner of war camp on June 1, 1948, the day that Carl Zeiss Jena VEB was established, he learned that his mother had been sleeping for a year on thousands of Zeiss lenses. Not only

Siegfried Kessler, at 1992 Society meeting in Oberkochen.

was their true significance unknown to her, but she was completely unaware that they were hidden under her mattress. He also learned why many things that had production potential were hidden in 1945, and what were the many changes that occurred while he was gone.

In 1945, CZJ's top echelon had been taken West by the Americans after the war; the second echelon, one year later, was taken by the Russians. Then in 1946, after 92% of the Carl Zeiss Jena facilities were dismantled and taken by the Russians, the third echelon of the proud Zeiss work force, in the true spirit of Abbe, made the recovery a reality. How? By risking their lives and hiding those objects they would need to begin again.

Hopes to Reune Dashed

During this period of recovery, Jena was still permitted to maintain technical ties with West Zeiss, still in its infancy. In fact, the Winkel plant in Goettingen and the Hensoldt plant in Wetzlar helped to reequip Jena, who expected to reunify with Oberkochen.

After the production facilities in Dresden and Jena were rebuilt, Carl Zeiss Inc., New York began to import from

both East Zeiss and West Zeiss.

In Jena, Kessler returned to Carl Zeiss and was assigned to the precision measuring instrument division (Mess), one of the first departments that reentered the market. First on the product line was the sugar refractometer, soon followed by the entire prewar Mess output. All was again available.

For some time, products from the two Germanies, East and West, were sold side-by-side. They were still hoping to reune, with the idea that Jena would market the established product line, while Oberkochen would concentrate on new developments. In Jena, the third echelon gathered courage anew.

But soon the Communist regime forced Jena to break its ties with the West, and to establish its own representation. Ercona and Steelmasters then became the US outlets for Carl Zeiss Jena.

When sixteen liaison employees having high rank were arrested in spring 1952, accused of having spied for the West, and each given twenty-five years in prison, Zeiss East realized they were alone.

Siegfried Goes West

By 1953, Kessler was appointed Marketing Manager, representing Carl Zeiss VEB in the "capitalistic" markets. All directives came from the Central Communist Party headquarters in Berlin. Not only was this a precarious assignment because Kessler had never joined the Communist Party, but also because his predecessor, Dr. Woenne, one of those sixteen taken, had been killed in prison. Later in 1953, Kessler fled to the West.

By the late fifties, Carl Zeiss Oberkochen realized that the US would never restitute the confiscated property of Carl Zeiss, Inc., and in 1960, Zeiss successfully reacquired the company. In the following year, after Dr. Bauer had retired at the age of 80 and Paul Goerz Langfeld was appointed president, the American activities of Carl Zeiss began a new chapter.

In 1961, the Zeiss scientific business started with annual sales of five million dollars, and approximately seventy-five employees in sales, service and administration. Operations were conducted almost exclusively from New York with only two sales reps in Chicago and Los Angeles. Most of the employees, particularly in service jobs, were German. Carl Zeiss, Inc. started to bring more specialists, sales engineers, service engineers, technicians and scientists from Germany to the US.

Siegfried Becomes President

When Langfeld left in 1965, Siegfried Kessler, who had served for two years as executive vice president, succeeded him as president. In 1966, the Zeiss Ikon-Voigtlaender business was established under the aegis of Carl Zeiss, Inc., as a separate company with Herbert Peerschke, president. Kessler was appointed chairman of Zeiss Ikon-Voigtlaender of America, Inc. From there on, both companies became independent companies, each reporting directly to their German headquarters.

Under Kessler's leadership, to hire primarily American technical personnel, who were sent on extended periods for training to the German companies, became the rule. Over the next ten years, Kessler established regional offices in Boston, Chicago, Washington, Houston, San Francisco, and Los Angeles. Additionally, sales and service engineers at

Ad from December 1930 "American Photography" magazine shows both the New York Fifth Avenue address and one in Los Angeles.

various outposts throughout the US were hired to maintain the equipment and to effectuate good customer relations.

At the same time, a tightly-knit dealer organization selling Zeiss products exclusively became assured. As a result, Zeiss's approximately 200 people in the field sold and serviced Zeiss instruments only. Their confidence, reliability, and identification with the Zeiss team was intensively supported by trade shows, workshops, promotions and large scale advertising, under the slogan, "Zeiss the Great Name in Optics." Zeiss, Inc. also replaced the monotonous black and white signs with the blue color print.

The most important event in the postwar period for Carl Zeiss, Inc. was the lawsuit at the Federal Court in New York - Carl Zeiss Oberkochen vs. Jena VEB. Litigation started in 1961 and came to an end in September 1967. Dr. Heinz Kueppenbender played a major role as witness for six consecutive days. His depositions contributed in large measure for the victory of Zeiss West.

Siegfried's Heroic Legacy

When Kessler, after twenty years as president of Carl Zeiss, Inc., and a total of forty-five years with the company, retired at the end of 1982, Carl Zeiss, Inc. had become the most important Zeiss sales organization outside Germany, with sales of ninety million dollars, employing almost 370 people. From the United States, Carl Zeiss, Inc. led the worldwide Zeiss subsidiaries.

At Dr. Wolfgang Pfeiffer's orientation in Oberkochen to ZHS members, before their tour of the Oberkochen offices and production facilities last Fall (1992), he presented a chart that listed the subsidiaries by their sales figures. Carl Zeiss, Inc., New York maintained the lead. They're still number one.

Editors' note: at the 1992 meeting in Oberkochen, Germany, Nick Grossman donned his Secretary "hat" to take notes. This story is based on those notes. In a 1979 Journal (Vol.VII), his role as Secretary was the first of many roles Nick has accepted over the years. Without Siegfried Kessler's talk there would have been no story. Siegfried is also an Honorary Member of ZHS. He and his wife Ilse now live in Hilton Head, South Carolina.

IDENTIFYING THE CONTAX I

Identifying the many versions of the Contax I has long been a difficult task. But in "Auf den Spuren der Contax" (On the Trail of the Contax), the definitive Contax book by member Hans-Juergen Kuc, seven pictorial tables have made the job much easier. Here, translated by the editors, are those tables.

Kuc's book, reviewed in the Spring 1992 issue of the Journal, is available from the publisher for DM 88. The address: Rita Wittig Fachbuchverlag, Chemnitzer Strasse 10, D-5142 Hueckelhoven, Germany. The original text is in German, but a Japanese version is also available from Wittig.

Contax I, Version 6, serial number Y16848, with earlier 5cm Tessar f3.5. Collectors should check models and features carefully: some Contax I cameras offered today are "composites" assembled from several versions.

Contax I, Version 1

Appeared in: Spring 1932
Serial numbers start at: approx. U20001
Front plate: Type I

Rear corner of body: angular.

Infinity lock for bayonet mount: none.

Winding knob: 1/25 to 1/1000 sec., no grouping of speeds.

Shutter-speed index mark on body: none.

Rangefinder window above winding knob: small, with mirror.

Index mark for exposure counter: arrow.

Accessory shoe: curved metal, 3 screws.

Viewing windows for finder and rangefinder: raised smooth rings.

Tripod socket: round, black or nickel.

Arrow beside rewind release: on the left.

Shutter release: mushroom or cylinder.

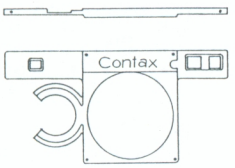
Pullout finder mask: short.

Focusing scale: black.

Features: original version with small (Type 1) front plate, no slow speeds, no raised bumps above the winding knob.

Contax I, Version 4

Appeared in: Spring 1933
Serial numbers start at: approx. U54001.
Front plate: Type III



Rear corner of body: angular.

Infinity lock for bayonet mount: none.

Winding knob: 1/2 to 1/1000 sec., in four groups.

Shutter-speed index mark on body: slotted screw head.

Rangefinder window above winding knob: small, mirror.

Index mark for exposure counter: arrow.

Accessory shoe: curved metal, 3 screws.

Viewing windows for finder and rangefinder: raised smooth rings.

Tripod socket: round nickel, or square with folding foot (either solid or hollow).

Arrow beside rewind release: on the left.

Shutter release: Cylinder.

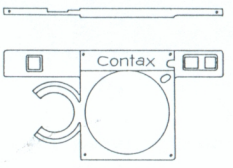
Pullout finder mask: short.

Focusing scale: black.

Features: like Version 3, but with shutter speeds in four groups, slow speeds. Different front plate (Type III).

Contax I, Version 5

Appeared in: Summer 1934
Serial numbers start at: approx. X28001
Front plate: Type IV



Rear corner of body: rounded.

Infinity lock for bayonet mount: yes.

Winding knob: 1/2 to 1/1000 sec., in four groups.

Shutter-speed index mark on body: slotted screw head.

Rangefinder window above winding knob: large, mirror.

Index mark for exposure counter: dot.

Accessory shoe: machined aluminum, no screws.

Viewing windows for finder and rangefinder: level, with concentric ridges.

Tripod socket: folding foot, either solid or hollow.

Arrow beside rewind release: on the right.

Shutter release: cylinder or cylinder with raised ring.

Pullout finder mask: short.

Focusing scale: nickel.

Features: new body shape, with rounded corners, machined aluminum accessory shoe, new front plate (Type IV).

Contax I, Version 2

Appeared in: Summer 1932
Serial numbers start at: approx. U21000
Front plate: Type I

Rear corner of body: angular.

Infinity lock for bayonet mount: none.

Winding knob: 1/25 to 1/1000 sec., no grouping of speeds.

Shutter-speed index mark on body: none.

Rangefinder window above winding knob: small, with mirror. 1 or 2 raised bumps above winding knob.

Index mark for exposure counter: arrow.

Accessory shoe: curved metal, 3 screws.

Viewing windows for finder and rangefinder: raised smooth rings.

Tripod socket: round, black or nickel.

Arrow beside rewind release: on the left.

Shutter release: Mushroom or cylinder.

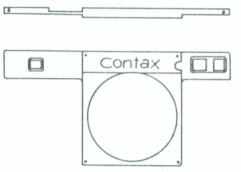
Pullout finder mask: short.

Focusing scale: black.

Features: like Version 1, but with small raised bumps above the winding knob.

Contax I, Version 3

Appeared in: Spring 1933
Serial numbers start at: approx. U21201
Front plate: Type II



Rear corner of body: angular.

Infinity lock for bayonet mount: none.

Winding knob: 1/25 to 1/1000 sec., no grouping of speeds.

Shutter-speed index mark on body: none.

Rangefinder window above winding knob: small, mirror.

Index mark for exposure counter: arrow.

Accessory shoe: curved metal, 3 screws.

Viewing windows for finder and rangefinder: raised smooth rings.

Tripod socket: round, black or nickel.

Arrow beside rewind release: on the left.

Shutter release: Mushroom or cylinder.

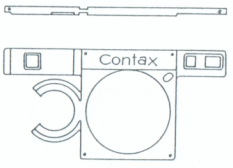
Pullout finder mask: short.

Focusing scale: black.

Features: like Version 1, but with new front plate (Type II).

Contax I, Version 6

Appeared in: Autumn 1934
Serial numbers start at: approx. X31001
Front plate: Type V



Rear corner of body: rounded.

Infinity lock for bayonet mount: yes.

Winding knob: 1/2 to 1/1000 sec., in four groups.

Shutter-speed index mark on body: slotted screwhead.

Rangefinder window above winding knob: large, rotating wedge.

Index mark for exposure counter: dot.

Accessory shoe: machined aluminum, no screws.

Viewing windows for finder and rangefinder: level, with concentric ridges.

Tripod socket: folding foot, either solid or hollow.

Arrow beside rewind release: on the right.

Shutter release: raised ring.

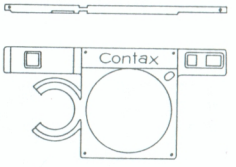
Pullout finder mask: long.

Focusing scale: nickel.

Features: like Version 5, but now with rotating-wedge rangefinder, long finder mask, and new front plate (Type V).

Contax I, Version 7

Appeared in: late 1935.
Serial numbers start with: Y, Z, and A.
Front plate: Type V



Rear corner of body: rounded.

Infinity lock for bayonet mount: yes.

Winding knob: 1/2 to 1/1000 sec., in four groups.

Shutter-speed index mark on body: arrow.

Rangefinder window above winding knob: large, rotating wedge.

Index mark for exposure counter: dot.

Accessory shoe: machined aluminum, four screws.

Viewing windows for finder and rangefinder: level, with concentric ridges.

Tripod socket: folding foot, either solid or hollow.

Arrow beside rewind release: on the right.

Shutter release: raised ring.

Pullout finder mask: long.

Focusing scale: nickel.

Features: like Version 6, but accessory shoe has four screws. Shutter speed index mark is now an arrow. Infinity release button remains depressed, except on infinity.

PUNKTAL LENSES

Dr. Wolfgang Pfeiffer, Oberkochen, Germany

The principal behind the design of Punktal lenses marked not only an improvement in eyeglass quality, but also a turning point in the history of ophthalmic lenses. The Punktal lens was the first to be computed on a wholly scientific basis. Unlike the biconvex lenses previously in use, the Punktal lens rendered a sharp image even when the wearer did not look through its optical axis.

In 1908, Zeiss entrusted the scientist Moritz von Rohr (1868-1940) with the mathematical elaboration of eyeglass lens development. The sheer arduousness of calculating the optimum curvature for eyeglass lenses in the days before the computer cannot be overemphasized. And calculations for the Punktal lenses were far more extensive than those needed for spherical lenses.

While the optical computations and preparations for production were being completed, the new lenses were already being tested on members of the Zeiss workforce and being introduced to ophthalmologists and opticians in training courses.

Punktal lenses were patented in 1909. The trademark Punktal was selected to indicate that these lenses provided point-focal (in German, "punktuell") images, not only for axial, but also for certain oblique bundles of light.

In 1912, Punktal lenses were introduced. Spherical Punktal lenses made of clear spectacle crown glass, toric lenses with two different curvatures in the principal meridians (for astigmatic eyes), and prismatic and lenticular lenses were delivered. (The advertisement shown above is from 1914.)

Von Rohr, with the assistance of other Zeiss scientists, achieved for eyeglass lenses what Ernst Abbe had achieved for microscopes some 40 years before: they put their designs on a truly scientific basis.

This article was excerpted by the editors from a much more detailed review of Zeiss eyeglass lenses which appeared in "Zeiss Information with Jena Revue" #1, 1992.

REVISITING HENSOLDT

Nicholas Grossman, Rockville, Maryland

Members of the Zeiss Historica Society have enjoyed visiting overseas and domestic offices and factories of the Carl Zeiss Foundation. Among the first to visit Oberkochen (September 24, 1979) were Mead and Nancy Kibbey and their daughter, when Mead presented Honorary Memberships in the Society to Wolf Wehran, Dr. Hans Sauer, Dr. Heinz Kueppenbender, and Dr. Ludwig Bertele. (Zeiss Historica Edition D.IX.80.) For more on Nick's travels see: Zeiss Telescopes in the US (S1981), Zeiss Abroad (S1984), Zeiss Vienna (F1985), Production in Jena (S1989), Zeiss in Hungary (S1990), Augustana College (F1990). The Editors.

With binoculars always on my mind, and in conjunction with our September 1992 meeting in Oberkochen, I arranged with Hensoldt to visit their factory again, as I had ten years earlier, when Oberkochen also hosted our meeting.

In 1982, I first learned that all binoculars marked Zeiss-West Germany were made by Hensoldt in Wetzlar, about 63 km (38 miles) northwest of Frankfurt. Hensoldt supplied optical subassemblies to Oberkochen and also produced rifle telescopes and measuring instruments.

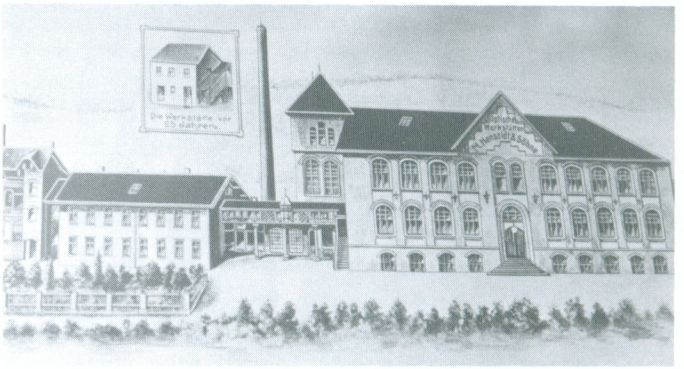
Zeiss eyeglasses, however, were manufactured in Aalen, Oberkochen's close neighbor. Aalen, too, housed the Zeiss marketing department for binoculars, rifle scopes, and eyeglasses.

The Hensoldt-Zeiss Connection

In 1849, Moritz Carl Hensoldt (born 1821 in Friedrichshall and died 1903) a precision mechanic, whose background somewhat echoed that of Carl Zeiss (1816-1888), joined with his brother-in-law, Carl Kellner (of Kellner eyepiece fame), to build telescopes in Wetzlar. By 1850, Hensoldt established his own workshop to manufacture optical instruments. Later it became known as M. Hensoldt & Soehne AG, Wetzlar.

Ernst Abbe (1840-1905) obtained his well-known patent for a new concept in 1894, using Porro prisms (named after Ignazio Porro 1801-75 Italian engineer) for image reversal in binoculars. That same year, Carl Zeiss Jena started to market these innovative "stereo-binoculars."

Hensoldt, too, became interested in prismatic binoculars. But aware of patent constraints, he explored other configurations in order to avoid infringement on the Zeiss patent. By 1897, Hensoldt offered their first patented binoculars using roof prisms. Later, they obtained a second patent for yet another roof prism configuration, the Dialyt, which appeared in 1905. (By this time, of course, his son Carl was actively in control of the business.) When the original Abbe patent expired, Hensoldt & Soehne added the Porro design to its production program.



Hensoldt factory in Wetzlar, 1900. Inset shows original plant.

The Carl Zeiss Stiftung purchased shares in M. Hensoldt and Soehne in 1928, and by 1954 acquired a majority holding. Fourteen years later, Hensoldt became a full member of the Carl Zeiss Stiftung with its name retained.

When newly established in Oberkochen and starting from scratch in 1945, Carl Zeiss decided to produce binoculars. Their first products took nine years to reach the market. In 1954, bearing the well-known lens-shaped trademark, Carl Zeiss Made in West Germany, their first binoculars were classic Porro prism designs, but with two significant innovations. First, Dr. Horst Kohler (Oberkochen) replaced the conventional cemented doublet objectives with airspaced teleobjectives. This enabled the designers additional flexibility, and made the instrument more compact. Second, Zeiss incorporated "cuff-sealing" for central-focusing binoculars, which made them practically dust proof.

Oberkochen introduced the long-exit pupil eyepieces in 1958 that permitted eyeglass wearers to see the full field of view without having to remove their glasses. These binoculars carried a "B" designation for "Brillentraeger" (eyepiece wearer).

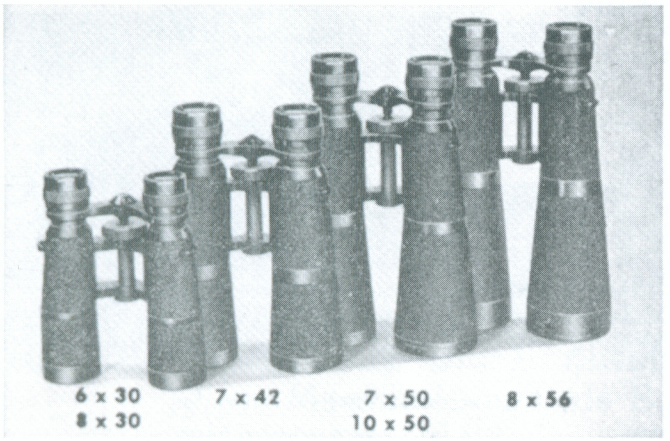
With Hensoldt continuing its own production, unaffected by Oberkochen's activity in the marketplace, Zeiss management decided to concentrate their entire binocular production in Wetzlar. Since 1964, all binoculars bearing Zeiss's name and trademark were made by Hensoldt in Wetzlar. At that time as well, Zeiss introduced a new line of binoculars named Dialyt. The current line of Dialyt binoculars, fabricated by Hensoldt and bearing the Zeiss

trademark, utilized still another form of prism configuration, the Pechan, rather than the original Hensoldt roof prisms.

Hensoldt & Soehne AG For a Day

Mr. Hans W. Gorny, Export Manager, was the guide, and the office of Dr. Karl H. Friedrich, President, the first stop. Dr. Friedrich is also the General Manager, Division of Binoculars, in the Zeiss organization. He presented a short history of the Hensoldt company, which is noted below.

Since about 1900, their multistoried factory has grown in this same location from a single small building. Buildings and property have been added as needed. Three major

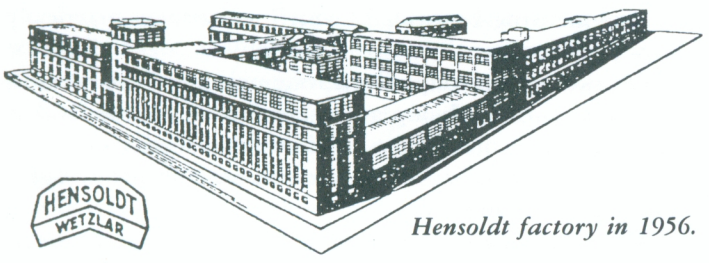


Hensoldt Dialyt line in 1956.

functional units comprise their output: optical production, machining and mechanical fabrication, and assembly. Additionally, and in the tradition of "on the job training", their own workshops provide experience, values, and knowledge of the Hensoldt organization to apprentices. Mr. Gorny, Wetzlar born, rose through these ranks.

At the peak of market demand a few years ago, Hensoldt employed about 1,200 persons. Currently, their staff numbers closer to 900, enough to operate one shift every day. And within a given department, workers have the option to establish flexible work schedules. Attending the plant for seven hours afforded plenty of time to observe and experience their routines. Mr. Gorny directed a most thorough tour.

Of the total production, Zeiss binoculars and Zeiss rifle scopes numbered sixty percent, Hensoldt measuring



Hensoldt factory in 1956.

instruments twenty percent, and Hensoldt binoculars of the classic Abbe Porro prism design twenty percent. These were made exclusively for the specifications of the German military.

Also included in the tour was the complete product line of Diadem theater glasses. Believing them to have been discontinued, it came as a surprise to find them, too. Also at this time, no 30x60 mirror monoculars were in production, leaving the impression that optics for the 60mm mirror monoculars came from Oberkochen, and then were assembled in Wetzlar.

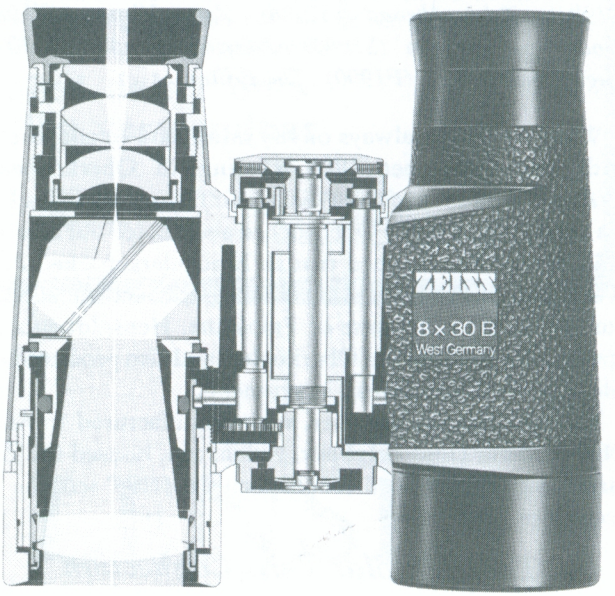
The "S" Product

"S" is for "stabilized", meaning a mechanism that provided counteraction of undesirable handshaking, especially when holding a heavy instrument.

Telescopes and binoculars not only magnify images, but also they magnify unintentional human shaking and vibrations, especially when they're held for extended periods. Solution? A solid support or gyroscopic stabilizer.

These gyros require an electric motor, circuitry,and power source. They are complicated, heavy, and very expensive. (Gyro stabilized binoculars have been extensively utilized by the military and others who must have steady, hand-held instruments.)

Zeiss recently unveiled a new concept to stabilize high



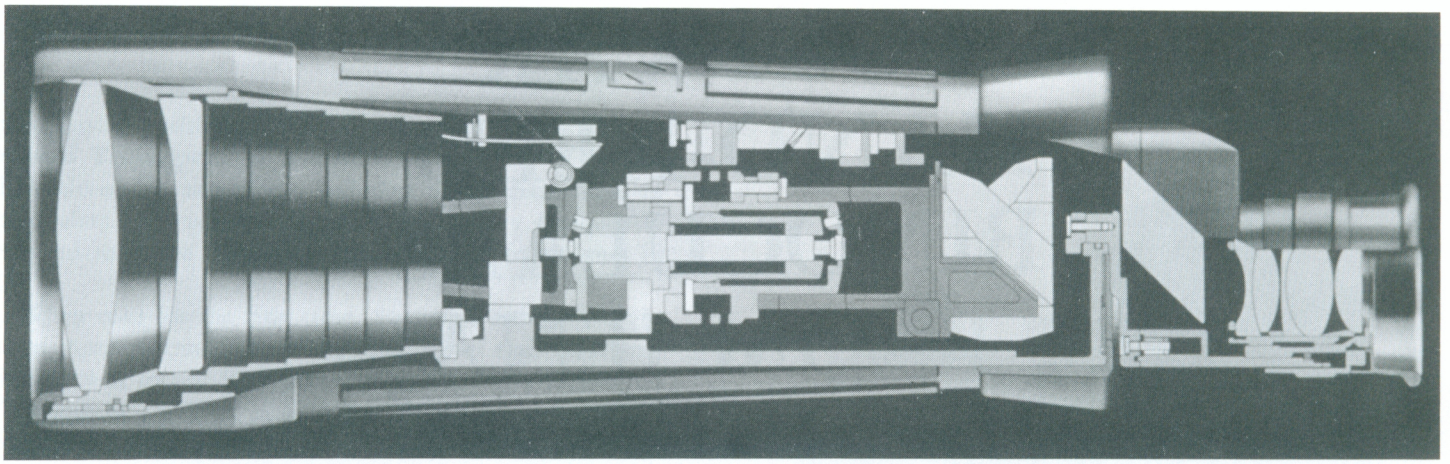
Modern (1991) Zeiss 8x30 Dialyt.

magnification binoculars. Dr. Friedrich explained the operation principle. He reached over, placed a 20x60 S binocular in the middle of the desk, and removed the top cover. There appeared an optical image transmitting assembly, located between the objectives and the eyepieces. And, resting on a single bearing point lay an object that looked like a magnetic compass needle.

This device retained the line of sight, counteracting motions and vibrations. An amazingly simple idea, technically called "cardanic." But the practical implementation, such as damping to avoid excessive swings, was part of the Zeiss invention. In Oberkochen later that week, Dr. Wolfgang Pfeiffer said that the development was carried out in Oberkochen, and that one of his neighbors had been chief developer of this technical breakthrough.

How Production Performs

"A typical pair of Zeiss binoculars contains more than 200



Cutaway of the new 20x60S stabilized binocular. Mechanical stabilizer (center) is linked to the Porro prisms. It compensates for hand-held vibration and provides incredibly steady image.

individual mechanical parts, and up to 18 optical components and requires about 1800 different, exactly calculated and precisely performed operations in its manufacture." (Binocular Dealer Technical Sales Booklet, Zeiss Optical Inc., Petersburg, Virginia. No date.) Subcontractors supply both die-cast aluminum-magnesium alloy binocular bodies and plastic housings for mini-binoculars. Other metal parts are machined in the factory from rods, tubes and other stock. Machining is performed on computer controlled machine tools.

Immediately apparent throughout the shops were frequent quality control (dimensional) inspections and an emphasis on environmental protection. For example, scraps, lubricants, metal cleaning, and chemical disposal were carefully monitored. Despite production processing being costly, both shared top priority.

Chemical surface finishing and painting also took place in this wing of the factory. Along with the production line were storerooms, having precise computer inventory controls for each sub-unit. The literature cited above also reported that "Over 80 percent of the cost of the finished binocular results from painstaking labor, and plentiful quality control stations, inspecting each binocular at each stage of the manufacturing process."

Originally, genuine leather covered binocular housings. Later imitation leather replaced this, and finally pebble-like finishes became the norm. Modern binoculars today have either simulated leather or synthetic rubber-armored housings for weather resistant use. (The attempt to sell painted metal products never found a market.)

Prior to assembly, this department performed the covering duties for the binocular bodies. The rubber coverings came by way of subcontractors, who cut and measured them to exact dimensions and precise shapes.

Two different shapes were applied: flat pieces that were glued and wrapped around the binocular, and a tubular shirt sleeve form that was slipped on, after applying the glue. In both types, the precision fit was remarkably accurate. Not a single missfit was rejected.

Glass Class

Raw glass in various shapes, including some rough lenses and prisms, came from the Zeiss affiliate Schott factory in Mainz, which holds an inventory of over 300 glass types. Also from the sales booklet above came information that some of the rare glass forms cost as much as $600. per pound, "uncut and unfinished." The grinding and polishing operations in this department were similar to those in Oberkochen. And the newly installed surface-coating furnaces used the most advanced techniques, all in compliance with current and anticipated environmental requirements. These were pleasantly surprising.

Hensoldt's specialty undoubtedly emphasized prisms, from extremely small ones, like the tip of a match, to more conventional sizes. Because these prisms must be precise, they demanded frequent quality control checks and measurements both mechanical (dimensional) and optical (surface finish and lightwave interference tests). Those optical elements not meeting quality controls were detoured for reworking.

Joining the optical elements, lenses and prisms, using glues or cements cured under ultraviolet light was the next step. These new glues eliminated the well-known tendency of prewar organic cements that deteriorated with time, became cloudy, and effected inferior to unacceptable optical performance.

The Finished Product

To combine the optical components and mechanical subassemblies into a single entity was the function of the assembly department. Two different lubricating greases were applied, quality and functional performance checks were frequent, and finally, completed instruments were sent to the Wetzlar warehouse for packing and shipping.

Postscript: In Oberkochen, the unofficial word is that Zeiss plans to market binoculars marked "100 Jahre" in 1994, to commemorate the centennial of the Zeiss binoculars.

Vast thanks to Dr. Karl Friedrich, Mr. Hans Gorny, and Frau Ilse Kohlrusch of Hensoldt & Soehne AG Wetzlar for making possible this day (September 7, 1992 from 9a.m. to 4p.m.) in the life of Hensoldt. Their time, patience with questions, and generosity was much appreciated.

Further reading on Hensoldt:

Charles Gellis, Hensoldt Baby Microscopes, Zeiss Historica Journal, Autumn 1983.

POSTWAR HAND-HELD BINOCULARS FROM JENA

Nicholas Grossman, Rockville, Maryland

Prior to World War II, binoculars were the most popular consumer goods produced by Carl Zeiss. Americans, who took the "grand tour", invariably returned with a pair of Zeiss Jena binoculars. Zeiss Binocular Catalog T 500 E, dated June 1931, listed eleven binocular models with Individual Focusing (IF) Eyepieces, ten models with Central Focusing (CF), thirteen monocular models, and two Theater Glasses. The last prewar catalog, designated Featherweight, was published in 1939 by Carl Zeiss New York. It listed seventeen binoculars and eight monoculars. Jena's postwar production resumed in 1947, according to Prof. Dr. Ing. Klaus Szangolies,* with its first postwar catalog CZ50-034-2, dated XII 1949, announcing eleven models (seven binocular and 4 monocular).

In 1956, Zeiss transferred the binocular production facilities from Jena to Eisfeld, a small town in Thuringia about 77 km (46 miles) southwest of Jena as the crow flies. A factory there had produced firearms during the war, which after the war became Zeiss's source for mechanical parts. Three years later, their Catalog CZ 50-038-2, dated V 1959, listed eleven binocular and seven monocular models, and for the first time mentioned "T" coating of optics.

Information on hand-held binoculars from Jena was available in the Jena Review-Supplement, "ABC of the Sales and Export Programme," 1971. (The Jenaer Rundschau and its English language edition, the Jena Review, were published from 1956 through 1992. Occasionally "Supplements" were attached, such as new product releases and special Trade Fair issues.)

Listed under the category, Prism Glasses and Telescopes, were four models: Binocular 7x50, Prism Binocular 8x30, Prism Binocular 10x50, and Prism Monocular 8x21. In 1973, the same publication, Export Programme, again listed these four models.

Jena also resumed marketing of their prewar 3.5x15 Theatis binoculars in various elegant finishes. Gold and lizard skin housings, with a vanity mirror inside the case, especially pleased women, who enjoyed theater, concert, or opera. In volume 1985, number 3, of the Jena Review, page 128, details about the modernized Eisfeld plant mentioned robots being used in the manufacturing process.

In addition to Eisfeld, Zeiss Jena management used another existing plant to manufacture inexpensive opera glasses, at the Rathenow Optical Works, renamed the "Duncker Plant." (Jena Review, 1983, number 2, page 92.)

One might justifiably ask, "What else was going on between 1945 and the early 1970s?" Because so far no information has come forth, one can only speculate that Zeiss scientists tried to design new models and to improve upon existing production techniques. There are some clues.

In a 1957 Jena Review, number 2, Dr. August Sonnefeld, an internationally recognized Zeiss scientist, wrote a two

1991 product line from Jenoptik Jena GmbH, Eisfeld Works.

NOBILEM 10 x 50 B

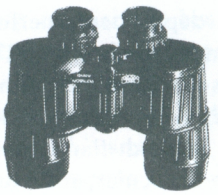
Magnification	10x
Lens diameter	50 mm
Twilight rating	22.36
Geometric light intensity	25.00
Exit pupil diameter	5 mm
Scope of view at 1000 m	128 m
Weight	1150 g
Dimensions in mm	205 x 181 x 62

NOBILEM 10x50 B/GA

Magnification	10x
Lens diameter	50 mm
Twilight rating	22.36
Geometric light intensity	25.00
Exit pupil diameter	5 mm
Scope of view at 1000 m	128 m
Weight	1360 g
Dimensions in mm	210 x 185 x 68

NOBILEM 12 x 50 B

Magnification	12x
Lens diameter	50 mm
Twilight rating	24.49
Geometric light intensity	17.64
Exit pupil diameter	4.2 mm
Scope of view at 1000 m	90 m
Weight	1170 g
Dimensions in mm	205 x 181 x 62



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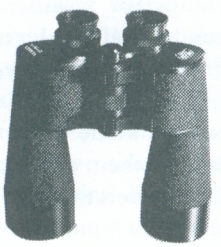


NOBILEM 15 x 60 B

Magnification	15x
Lens diameter	60 mm
Twilight rating	30.00
Geometric light intensity	16.00
Exit pupil diameter	4 mm
Scope of view at 1000 m	78 m
Weight	1480 g
Dimensions in mm	215 x 222 x 72

part article entitled, "Magnification and Distortion of Manual Telescopes." A treatise on the theory of optical distortions, his exposition included image distortions in binoculars. Sonnefeld refuted Airy's theory, frequently referred to as the "tangent condition," and formulated in 1827.

When read for the first time, Sonnefeld's theory might seem more abstract than substantial, but it resurfaced in a Supplement to the 1979 Jena Review. Under a section on "Binoculars", a brief note stated, "...binoculars feature prominent [sic] in the range of consumer goods which is quite obvious from the steadily growing production volume. In the period from 1971 onward...roughly one million binocular telescopes have been produced in a variety of models." Then was added, "...between 1945 and 1949 Sonnefeld and his coworkers found a new way of correcting the image field by abandoning the tangent condition. This extended the depth of field virtually as far as the margin of the field of view while ensuring a more faithful perspective rendering. Moreover, by this correction to the field it was possible to obtain an even better axial correction in prism binoculars." Might this partially explain what happened between 1945 and the early 1970s?

New models appeared in the 1980 Leipzig Fair Jena Review Supplement: a 7x50 Porro prism monocular and two brand-new roof prism types, the Notarem 8x32B and the Notarem 10x40 B. They were described as a "...new series...modern straight-vision prism glasses...(with) some remarkable novel features: Objectives-divided tele-objective...Image-version system [sic]...Schmidt system using half-pentaprism and roof prism." A binocular catalog, publication 50-047 was also identified. Were these new models the practical/substantial forms that reflected the abstract ideas of Dr. Sonnefeld and his coworkers?

The next expansion was announced in the 1981 Leipzig Fair Supplement. Under "Field Glasses" appeared the Nobilem 8x50 B (super) and Nobilem 12x50 B (special).

Ten years later, in July 1991, Docter-Optic Wetzlar GmbH purchased several former VEB Carl Zeiss factories, including the binocular and riflescope plant in Eisfeld. An

Zeiss 7x50B from West Germany (left), Zeiss Jena Octarem 8x50B.

established optical equipment manufacturer and supplier to the trade, Docter-Optic is an OEM, i.e. Original Equipment Manufacturer. Their products include automobile headlights, projection and reproduction lenses.

After a relatively short transition period, the Eisfeld factory began production of the former Zeiss product line, somewhat restyled and modified, and bearing the Docter-Optic trademark. This "new" line appeared at Photokina 1992 in Cologne. In the December 1992 issue of Shutterbug, a monthly publication devoted to photography, one of Connecticut's large camera stores advertised its intention to market the Docter-Optic product line in the USA. The Carl Zeiss Jena trademark became history.

**Editors' note: Prof. Dr. Ing. Klaus Szangolies lives in Jena. He came to work for CZJ as a scientist in photogrammetry in 1957, when he was in his midtwenties. Later, he became Marketing Director of Sales in these products, travelling the globe. His position took him to five continents. In late 1991, he was retired from the firm, but remained as a consultant. He is a Visiting Professor in his field.*

NOBILEM 7 x 50 B

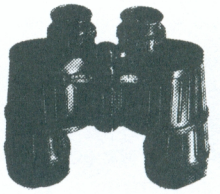
Magnification	7x
Lens diameter	50 mm
Twilight rating	18.70
Geometric light intensity	50.97
Exit pupil diameter	7.14 mm
Scope of view at 1000 m	136 m
Weight	1100 g
Dimensions in mm	205 x 184 x 62

NOBILEM 7 x 50 B/GA

Magnification	7x
Lens diameter	50 mm
Twilight rating	18.70
Geometric light intensity	50.97
Exit pupil diameter	7.14 mm
Scope of view at 1000 m	136 m
Weight	1250 g
Dimensions in mm	210 x 185 x 68

NOBILEM 8 x 50 B

Magnification	8x
Lens diameter	50 mm
Twilight rating	20.00
Geometric light intensity	39.00
Exit pupil diameter	6.25 mm
Scope of view at 1000 m	122 m
Weight	1070 g
Dimensions in mm	205 x 178 x 62



NOBILEM 8 x 50 B/GA

Magnification	8x
Lens diameter	50 mm
Twilight rating	20.00
Geometric light intensity	39.00
Exit pupil diameter	6.25 mm
Scope of view at 1000 m	122 m
Weight	1250 g
Dimensions in mm	210 x 185 x 68

NOBILEM 8 x 56 B

Magnification	8x
Lens diameter	56 mm
Twilight rating	21.16
Geometric light intensity	49.00
Exit pupil diameter	7 mm
Scope of view at 1000 m	114 m
Weight	1250 g
Dimensions in mm	211 x 178 x 68

MORE ON ZEISS TELE LENSES FOR ROLLEI TLRS

R. G. Pins, Norwood, New Jersey

Terence Sheehy's article on the Zeiss Magnar and Duonar telephotos for the twin-lens Rolleis (Zeiss Historica Journal, Autumn 1992) and his reference to the Magnar in an earlier article (Journal, Autumn 1991) introduced Zeiss collectors to two of the most interesting products which Zeiss provided for non-Zeiss cameras. From my experience as a dealer and collector, I want to shed further light on these products.

As background, it is important to remember that Franke & Heidecke, manufacturers of the Rollei line, were the largest commercial users of Zeiss Tessar and Triotar lenses from 1931 to 1939. They purchased over 500,000 units, generally in batches of 10,000 to 30,000 with consecutive serial numbers. Until the demands of the German military took precedence, Franke & Heidecke had first call on Zeiss production. (The second largest commercial user of Zeiss optics was Ihagee, makers of 35mm and 127 rollfilm Exakta cameras.)

Zeiss Magnars

The Magnar first appeared in Rolleiflex and Rolleicord brochures dated March 1939. Interestingly, the lens shown in both brochures does not carry the Franke & Heidecke logo.

A price list of July 1, 1939 (from Burleigh Brooks, NYC) listed the Magnar for $140, the necessary tripod clamp at $7.75, and a leather case for $8.75. The supplementary (but necessary) "bayonet adapter to fasten Magnar to finder lens" listed for $8.00. In the last Burleigh Brooks price list which contains the Magnar (December 11, 1939), the price of the Magnar had increased to $155.00, while the tripod clamp, case and bayonet adapter have increased to $9.00 each. You could have bought an Automatic Rolleiflex with f3.5 Tessar in a Compur Rapid shutter from the same price list for less: $144.

Production figures for the Magnar are not available. But we can make some reasonable deductions. Sheehy's article shows 4X Magnars Nr. 2450633 (p. 16) and Nr. 2450656 (p. 18). In my possession are Magnars Nr. 2450645 and Nr. 2450702.

I have been an extremely active buyer of Rolleis and Rollei accessories for over 18 years. From my experience, I can safely assert that Magnars are very infrequently offered for sale. It seems most likely that either an extremely limited number were produced, or that unsold stock was converted to other uses or destroyed.

I have seen no post-1939 Franke & Heidecke literature which mentions the Magnar. It appears in no catalog, flyer, instruction sheet or price list. Nor does it appear in the house organ "Rollei Cameras," which Walter Heering produced for Franke & Heidecke.

My conclusion: Since Franke & Heidecke never publicized a product which had not been researched by both its engineering and marketing staffs, it would seem that they must have contracted for at least 1000 units from Zeiss, but cancelled the order in 1939 or 1940 due to weak sales.

Zeiss Duonars

The Duonar first appeared in factory literature dated October 1952, and remained on price lists until 1955.

Only one style was offered for sale: a black-finished barrel with rotating concentric bayonet mounts. Bayonet 1 fit Rolleiflexes with 75mm f3.5 Tessars or Xenars in the standard Compur Rapid shutter. Bayonet 3 fit the 80mm f2.8 Xenotar, Biometar or Planar of Rolleiflex models B, C, and D.

The lens came in a leather case marked "F&H" for Franke & Heidecke. A matching plastic cap and three special screw-on filers were included. Burleigh Brooks, the US importer, originally supplied a viewfinder mask with the Duonar, since only the center of the viewfinder was magnified. No mention of this accessory was made in factory literature, so it may have been added by necessity.

Two Duonars are in my possession. They are marked "DUONAR 2X 'T'," and carry Carl Zeiss Jena serial numbers 3466467 and 3545511. I do not know the quantity produced, but it was presumably at least 1000 units. A larger quantity is not out of the question.

How scarce is the Duonar? When I originally advertised for them, I received a rather wide response. But only a handful turned out to be serviceable. Many were dented, cracked or showed other signs of being mishandled. This may have been due to a lack of proper instruction or the loss of caps and/or carrying cases. But with sound units, the pictorial results were admirable.

The introduction of the Tele-Rolleiflex with its 135mm lens made the Duonar obsolete.

THE DUONAR 2x (with antireflex-coating)

has been made by Carl Zeiss, Jena, as an auxiliary telephoto-attachment for the taking lens of Rollei-cameras. It produces a doubling of the Rollei-focus from 75 [80]* mm to 150 [160]* mm and doubles simultaneously also the reproduction scale of the picture. Distant objects are reproduced with all their details in crisp, clear-cut images retaining their critical sharpness. It yields negatives which in low-ratio enlargements already give pictures of the finest detail without any annoying graininess. The Duonar

Focal length

Reproduction scale

bridges the separating distance:

In landscapes, architectures and other distant objects or when the confined space does not allow the taking distance to be decreased the Duonar brings about the desired size of detail in the picture.

Sharpness

The Duonar furthermore exploits in a favorable way the already high resolving power of the Rollei-lenses without impairing the wellknown safety in focusing by the rigid Rollei-principle. Similar to the working of a binocular, the Duonar renders a circular field of vision within which the important part of the picture is included. From this sharp circular picture of an approximate diameter of $1^{11}/_{16}$" the square size of $1^{6}/_{16} \times 1^{6}/_{16}$" or else the miniature size of 24 x 36 mm (upright or horizontal size) can be chosen. This makes the Duonar of special importance for work with the cine-film attachment Rolleikin 2, which, owing to size and angle of view, is for the most part used for Rollei-pictures with tele-features.

Picture size

Speed

Its limitation to only a section of the original $2^{1}/_{4} \times 2^{1}/_{4}$" size the Duonar could be designed for the impressive speed of 1 : 5.6 approximately. For the range of stops from 5.6 to 22 the stop-marks of the Rollei lenses will apply.

Exposure factor

Owing to the employment of special optical glasses with a slight yellow tinge the Duonar in itself has the effect of a very light yellow filter. Multiplying factor is, therefore, about 1.3.

Working distance

The Duonar can be focused from approx. 12 ft to ∞. The focusing with the Rollei-camera must, however, be slightly changed in comparison with the usual technique, because it is now a long focus camera. Two physical laws have to be taken into account:

Depth of field

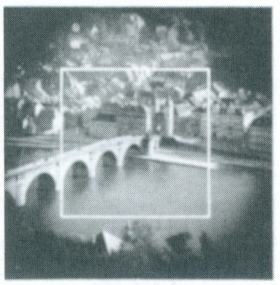
1. The depth of field decreases with increasing focal length. That is why Duonar photographs ask for a very careful focusing and an adequate smaller stop to achieve the desired depth of field.

Exposure time

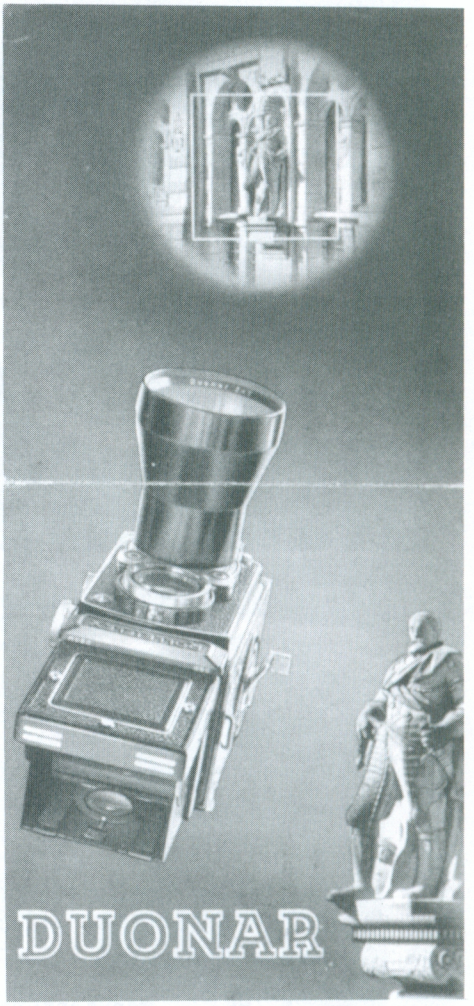
2. Camera movements with long focus lenses result in blurred pictures. This risk of blurring the picture due to camera movement is incomparably greater with a long focus lens than with the normal lens. To avoid it, Duonar photographs should always be taken with a tripod or at the slowest exposure time of $^{1}/_{100}$ sec. when the picture is taken from hand.

* Figures given in parenthesis apply to a focal length of 80 mm.

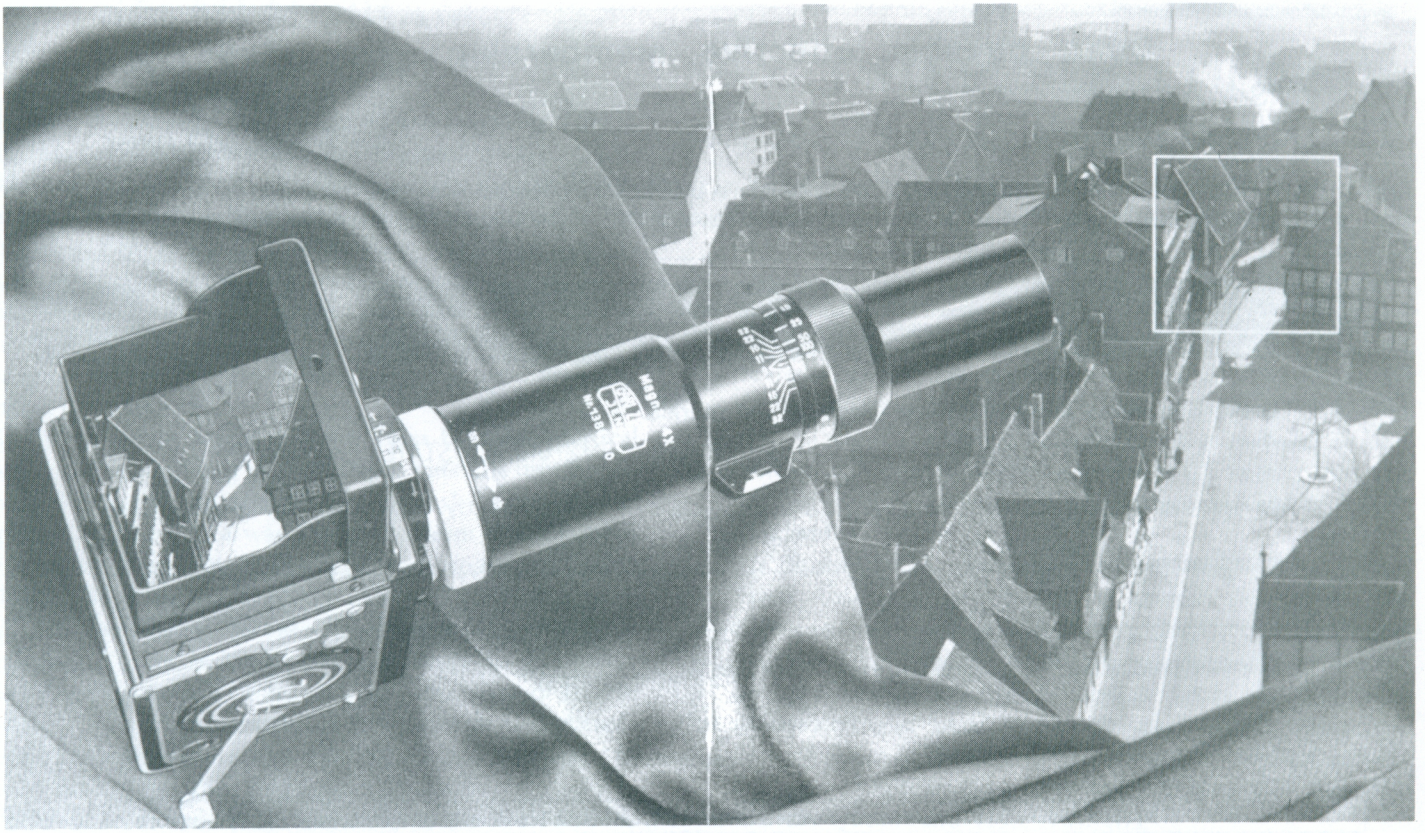
Without Duonar



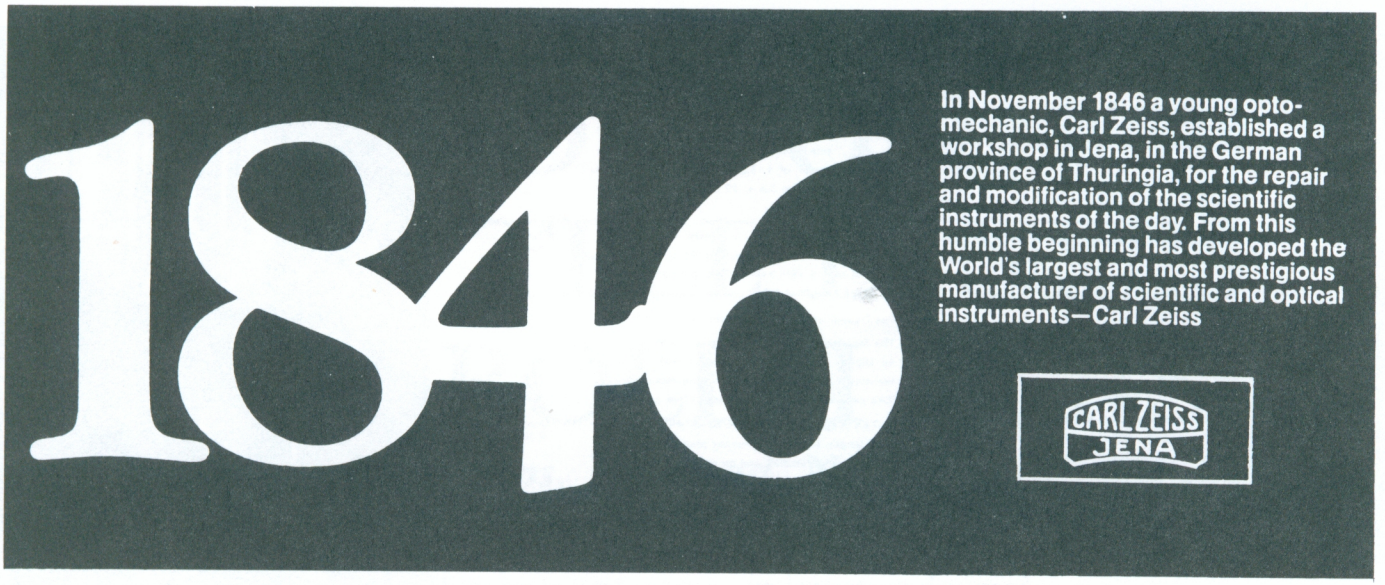
With Duonar



1952 Franke & Heidecke brochure showing the Duonar.



Magnar as depicted in 1939 "Rollei Accessories" brochure.



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An educational, non profit Society dedicated to the study and exchange of information on the history of CARL ZEISS optical company and affiliates, its products from 1846 to the present.

* WHO ARE WE? A group of Zeiss enthusiasts, historians and collectors.

* WHAT DO WE DO? We meet at least annually in Canada or the United States to share information. We publish a semi-annual journal with original articles about ZEISS history and products.

* WHO CAN JOIN THE SOCIETY? Anyone who is interested in the ZEISS companies, collecting what they manufacture or studying their history.

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My address is _____

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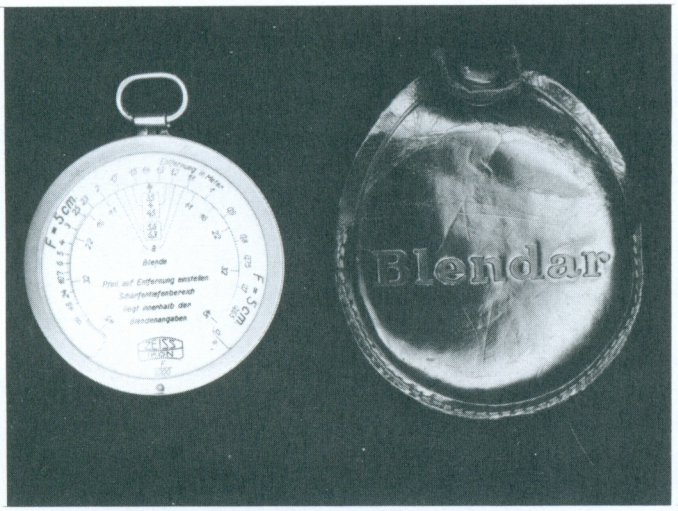
Enclosed please find a cheque/money order for $ _____.00 in U.S. funds

I do _____ /do not _____ wish my name to be published in the membership directory. I am especially interested in (select) cameras ☐ ; telescopes ☐ ; microscopes ☐ ; history ☐ ; other optical instruments (specify) _____

LICHTSTRAHLEN

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



UNUSUAL ACCESSORY

From the collection of Secretary-Treasurer Maurice Zubatkin comes a rarely seen Zeiss Ikon accessory: a "Blendar" depth of field indicator. Shown here is a Blendar for 5cm lenses. Blendars also exist for lenses of other focal lengths. The name Blendar is derived from the German word "Blende", which means aperture in English.

IN MEMORIAM: HANS PADELT

It is again my chore to bring sad news to our Society. Late in 1992, honorary member Hans Padelt passed away.

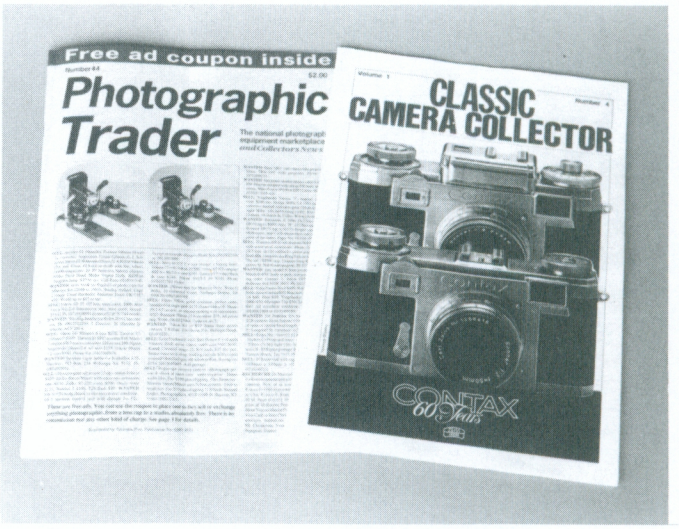
He was the first of the new engineers for camera design that Dr. Heinz Kueppenbender hired when he moved to the Zeiss Ikon firm in the late 1920s. Hans worked on various assignments such as the microscope version of the 3 x 4 cm Kolibri, on various Contax designs, and on the optical/rangefinder system for the Super Ikonta cameras. At this time Hubert Nerwin joined his department and they became close friends.

In 1934, he was forced to leave Zeiss Ikon for political reasons and immigrated to Yugoslavia. Later, he returned to Dresden but was not permitted to work in the design department. Instead, he was given the dream assignment of being a Zeiss Ikon sponsored free lance photographer for the publicity department. In doing so, Hans received all the company's newest equipment to photograph for the various catalogs and journals. Hans was the person who assured me that he had used a late Contax I with a top speed of 1/1250 second. This work lasted from 1935 to 1940. In 1940, he was drafted into the army, and in 1945,he became a prisoner of war in Russia to return to Dresden in 1948.

In 1949, he escaped with his family to the West and his friend, Hubert Nerwin, arranged for them to work together as design engineers in Rochester, N.Y. for Graflex in 1951. He worked for Graflex while Hubert moved on to Kodak. Hans was the senior project manager for cameras and optical instruments until 1969, when he moved to the northern tip of Nova Scotia at Cape North, where he spent his retirement years.

Hans was a wonderful gentleman who was a great source of information for me and the Society.

Larry Gubas



TWO PUBLICATIONS FOR COLLECTORS

"Classic Camera Collector" is published in England, edited by member Terence Sheehy. It's an interesting and informative journal. A recent issue (Volume 1, Number 4) contains a number of detailed articles on Zeiss equipment, as well as pieces on the Minox B, the Roland, the grey Baby Rollei, the Nikon F2S, and the Agfa Silette SL. Book reviews and personalities are also included. "Classic Camera Collector" appears quarterly, and costs L28 per year when subscribing from the US or Canada. Price includes airmail postage. Checks should be made out to T.J. Sheehy, and sent to him at 39 Beechwood Ave., Orpington, Kent BR6 7EZ, England.

"Photographic Trader" is a Shutterbug-like magazine from Australia. Its publisher is member Neil Smith. In addition to classified and display ads, it contains book reviews, letters, reports on shows, etc. Of particular interest to non-Australians are Australian tastes in collectible equipment and local prices. A year's subscription (six issues) costs A$21 in North America, includes airmail postage. Address: Photographic Trader, PO Box 95, Carina, Queensland 4152, Australia.

Confusion, Ltd.

Zeiss of East Germany, Zeiss of West Germany Battle in World Markets

Optical Firms, Split by War, Both Do Well; Price Cuts, Propaganda and Problems

At Home With Hans & Erich

By ROGER RICKLEFS
Staff Reporter of THE WALL STREET JOURNAL

When the University of Toronto's Royal Ontario Museum decided to build a planetarium not long ago, two German optical concerns competed to supply the complex projector that depicts the changing heavens on the theater's domed ceiling.

The winner, bidding $150,000, was a company with a long-standing reputation for high-quality camera lenses, binoculars and other precision optical products, Carl Zeiss. And the loser? Carl Zeiss.

Behind this seeming contradiction lies a tale of two companies that the fortunes of war and politics have created out of one. The winner at Toronto was VEB Carl Zeiss Jena of Jena, East Germany. The loser, not far distant in geography but across the Iron Curtain in politics, was Carl Zeiss, owned by the nonprofit Carl Zeiss Foundation of Heidenheim, West Germany.

The two are engaged in an expanding sales rivalry around the world. They are also fighting in courts from Lisbon to Karachi over which will have exclusive use of the famous family name.

At times, the two seem close to denying each other's existence. "Isn't it just terrible the way those people over in Jena capitalize on our name?" demands a West German Zeiss official. Retorts Ernst Gallerach, East German Zeiss' wiry 36-year-old general director: "No matter what they tell you, that West German plant just isn't a Zeiss works."

Dates to 1846

The struggle is over a company name that dates to 1846, when Carl Zeiss, a lushly bearded mechanic, opened a one-man optical workshop in Jena, an old university town of stucco houses with steep, red-tiled roofs. After he died, control passed to Ernst Abbe, a progressive, even more luxuriously bearded physics professor. He founded the Carl Zeiss Foundation, a charitable organization and made it the owner of the growing optical concern. Thereafter, Zeiss profits supported scientific research, social welfare and other causes.

During World War II, Zeiss was a key optical equipment producer for Hitler's war machine. The postwar division of Germany placed Jena in the Soviet zone, even though the American Army had conquered that city. Recognizing Carl Zeiss' strategic importance, the withdrawing U.S. Army took along 126 top Zeiss executives, scientists and craftsmen, including the board of directors. The directors, insisting that authority to move the Zeiss Foundation lay with them, transferred the organization's headquarters to Heidenheim, a hamlet that is a two-hour drive from Stuttgart, and started manufacturing operations in nearby Oberkochen.

At about the same time, East Germany's new Communist leaders nationalized the Jena plant. In part, presumably, to strengthen their claim to the Zeiss name, the East Germans also operate a Zeiss Foundation at Jena that administers worker welfare and other programs. Insisting the Foundation couldn't legally move to Heidenheim without local government permission, which was never given, East Zeiss—like its Heidenheim rival—insists it is the one and only real Zeiss.

"Capitalistic Tools"

Despite their differences, the two companies put on surprisingly similar, capitalistic-looking faces for the West. In London, where East Zeiss has a largely British staff, the sales manager is a conservatively dressed lifelong Tory, John Bradshaw. The modern London showroom in the fashionable West End features gleaming equipment displays, racks of glossy color brochures and similar "capitalistic tools."

Some East Zeiss officials are perfectly at home with Madison Avenue lingo, too. "The hard sell may be fine for some consumer goods, but we prefer the soft sell ourselves," says Karl-Heinz Hoppe, 29, a smartly-dressed export official in Jena.

Still an underdog to West Zeiss in Free World markets, East Zeiss is pushing to catch up. Its British subsidiary, C. Z. Scientific Instruments Ltd., has increased its staff to 39 from 3 in the past 7 years. "They're definitely a livelier, more modern competitor than they used to be," says A. H. Degenhardt, the managing director of Degenhardt & Co., West Zeiss' 85-man British sales subsidiary.

The more East Zeiss grows in the West, the more confusion grows between the companies—sometimes with strange results. Earlier this year, London University wanted to order a West Zeiss microscope, but the school contacted the wrong distributor. The East Zeiss salesman explained the error—and quickly launched into a pitch for his company's competing model. The result: A $1,960 order for Jena. Both distributors say such incidents are becoming commonplace.

The confusion also leads to resentment. "Jena definitely benefits from our advertising," complains Gerald Powell, a Degenhardt director. "For years, we've been selling and heavily advertising our Zeiss Umbral sunglass lenses here. Then three years ago Jena introduced a similar lens with the same name. The average customer doesn't know the difference, so Jena is cutting into our sales." (Umbral is a type of lens, not simply a randomly chosen trade name, Jena notes.) Degenhardt, which always calls its rival Jena and never Zeiss, says opticians last summer erroneously sent it five pair of broken Jena sunglasses for repair every week.

Such problems are less common in the U.S., where East Zeiss says it sells only about $200,000 of equipment a year through a distributor, Ercona Corp. of New York. (Besides direct exports, however, East Zeiss also supplies all the lenses for Exakta, Exa, Proktica and Praktisix cameras, East German models sold in the U.S.) Since political problems keep the Jena company from sending its own service technicians, which it considers necessary for major equipment sales, U.S. business is mainly limited to small equipment, the company says.

In contrast, West Zeiss owns a New York-based sales subsidiary and says American sales climbed to about $10 million in the year ended Sept. 30, up 25% from a year earlier. The West German concern says it has sold about 500,000 of its own brand cameras in the U.S. since the end of World War II; it currently supplies lenses for Hasselblad and Rolleiflex cameras too. American astronauts learn celestial navigation at a West Zeiss planetarium in Chapel Hill, N.C. In the past couple of years, the West German concern has received planetarium instrument orders from Atlanta, Ga., Baton Rouge, La., and Albany and Rochester, N.Y.

In the U.S. and other Western markets, resistance to buying Communist-made goods also costs East Zeiss sales. When Dow Brewery Ltd., a subsidiary of Canadian Breweries Ltd., Toronto, gave the city of Montreal a planetarium recently, it ordered its optical instrument from West Zeiss and "didn't even consider" Jena, says Pierre Gendron, Dow president. The planetarium was "a gift to the city from private enterprise and I felt the projector should be built by a free-enterprise company," he explains.

Says Mr. Gallerach, East Zeiss' general director: "You'll always get some resistance to buying from a socialist country, but we notice this is declining very sharply, especially among scientists."

Before the Royal Ontario Museum chose the East Zeiss planetarium projector, the company's Communist ownership was raised in committee meetings, but "never became a stumbling block," says Henry King, the Toronto planetarium's curator. "This is part of the science of astronomy and in science there are no barriers." East Zeiss substantially underbid the West Germans, promised quicker delivery and "bent over backward to help us with delivery, specification and technical assistance," he adds.

Price Cutting

East Zeiss distributors don't try to deny the origin of their merchandise, but they often try to put the communism issue in positive context. The company's salesmen in Britain, for instance, are instructed to say: "We represent the original Zeiss company in Jena, East Germany."

East Zeiss also gains by cutting prices on some items far below those of the West German concern. In Britain, West Zeiss says its rival undersells it by about 30% on some items, though prices are similar on others. This price cutting, which East Zeiss attributes largely to production efficiencies, may eat into profit margins, but it helps East Germany gain badly needed Western currency.

The fighting in the market place parallels fighting in the courts. East Zeiss says legal proceedings over use of the name and trademarks are pending in more than 30 countries, including the U.S., Britain, Japan, Pakistan, Portugal, Italy, Greece and Egypt. Records of the case line all four walls of a Jena office.

So far, more than 100 judges around the world, including five in Britain's House of Lords, have issued procedural, preliminary or final rulings in the cases, East Zeiss says. Rulings so far have barred West Zeiss from using the name in East Germany, Czechoslovakia and Yugoslavia. (West Zeiss didn't participate in the cases and doesn't sell in the Eastern block.) West Zeiss won similar rulings against its rival in West Germany, Austria and the Netherlands.

Especially bitter about the West German decision, which East Zeiss officials denounce as "purely ideological, purely political," East Zeiss still sells in that market under the trade name "Aus Jena" (From Jena). On some autobahns that West Germans use to reach West Berlin, East Germany installed big signs proclaiming: "There is only one real Zeiss—Jena."

"An Utter Mess"

But for all their rivalry and differing political environments, both companies have followed remarkably parallel lines since the war, growing steadily despite great initial postwar obstacles. Wartime damage and Russian seizure of equipment as war reparations left East Zeiss with about 10% of its prewar plant capacity, the company says. "The place was an utter mess. It took forever just to clear away the rubble," recalls an official.

With state-financed rebuilding, production of simple items resumed in 1946. Three years later, employment had climbed to 10,000, well above the prewar record of 8,000. Employment now is 22,000, compared with 30,000 at West Zeiss, which has diversified more into related fields, officials say. East Zeiss sales are approaching $125 million, and growing 7% to 9% a year, the company's Mr. Gallerach says. Foreign sales total about 65% of output; of all exports, 30% go to the West, the official says. "Profits are sufficient; we're doing all right," he adds.

West Zeiss also overcame huge postwar problems. Arriving at Heidenheim on U.S. Army trucks, the 126 Zeiss employes who left Jena slept initially in abandoned barracks and factory rooms partitioned into one room family dwellings. "Everybody's children played ball over the partitions," recalls Fritz Wolf, the quality control director.

Financed by bank loans, the company rented a factory in Oberkochen, a valley hamlet, and started to rebuild. "I remember once when some equipment came to the railroad station, I brought it to the factory by oxcart; we couldn't possibly afford trucks in those days," Mr. Wolf recalls. A Zeiss shipment salvaged from a boat that was sunk in the river Main during the war yielded 10 measuring instruments still in use outside Mr. Wolf's office.

Since the tough start, sales have climbed. The Carl Zeiss Foundation in Heidenheim says sales of its manufacturing subsidiaries reached about $162.5 million in the year ended last Sept. 30, up from $127.7 million five years earlier. Exports now total 40% of output. Profits are still used to support research and other causes.

Some Contrasts

Although there have been many similarities in development, there are some sharp contrasts in the two companies today. The Jena and Oberkochen factories are both cheerful, well-lit, multistoried stucco buildings attractively landscaped. But where the employe parking lot is full of Volkswagen, Opel and Taunus cars at Oberkochen, there are only a few cars—Russian Volgas, Czech Skodas and East German Trabants—outside the Jena plant.

East Zeiss' general director, Mr. Gallerach, may at first resemble a West German or American executive. Dressed in a natural shoulder olive suit, the slender official sits in a walnut-paneled conference room of his ninth-story corner offices and talks about sales trends. The son of a butcher, the executive holds a diploma in industrial management. But he has been a Communist party member since he was 18. He condemns American fighting in Vietnam and says he fears an imminent Nazi revival in West Germany.

Political propaganda is everywhere in Jena, nowhere in Oberkochen. The East Zeiss factory has dozens of political posters and pictures of political leaders on bulletin boards. A poster urging "solidarity with North Vietnam" displays photographs of dead, half-naked North Vietnamese; alleged victims of U.S. "aggression." Outside one building—most of whose equipment the Soviets took as reparations after the war—an enormous red sign proclaims: "Through cooperation with the Soviet Union, the German Democratic Republic gains strength." A few yards away, two dozen housewives line up outside a store to buy oranges (about 15 cents each).

Worker living standards also differ. After Hans Gumpert, now a West Zeiss foreman, fled the Jena plant for Oberkochen in 1946, he lived at first in an abandoned aircraft factory and heated water by boiling it in leftover CARE package tin cans. Today the graying, meticulously dressed foreman lives in a modern six-year-old stucco house with his wife and twin teenage sons. With Mrs. Gumpert working as manager of a radio shop, the family spends vacations in Italy and Switzerland and owns a year-old Taunus car made by Ford Motor Co.'s German subsidiary. Mr. Gumpert, who bought his first car in 1953, four years ago gave his sons a red go-kart that he says "has become my hobby as much as theirs." He earns about $375 a month.

In contrast, Erich Kaufmann, a cheerful, dark-haired foreman at East Zeiss earns $235 a month. His standard of living also has improved dramatically since the end of the war; to help provide heat for his parents' home in those days, he picked up the lumps of coal that fuel trucks dropped. Mr. Kaufmann now watches television in his small but comfortable living room while his three-year-old son plays with an electric train nearby. Much like a U.S. teenager, the Kaufmann's smartly dressed 17-year-old daughter covers her bedroom walls with photographs of movie stars, including one of Frank Sinatra that a relative sent from West Germany.

But the Kaufmanns' apartment in a 19th Century, brick-faced building shares a bathroom with the apartment downstairs. It has no refrigerator and the floors are covered with linoleum instead of the parquet at Mr. Gumpert's. The Kaufmanns are still waiting for their first car, which they hope to buy in another two years. Says the 40-year-old foreman: "What we really want in life now is a car."