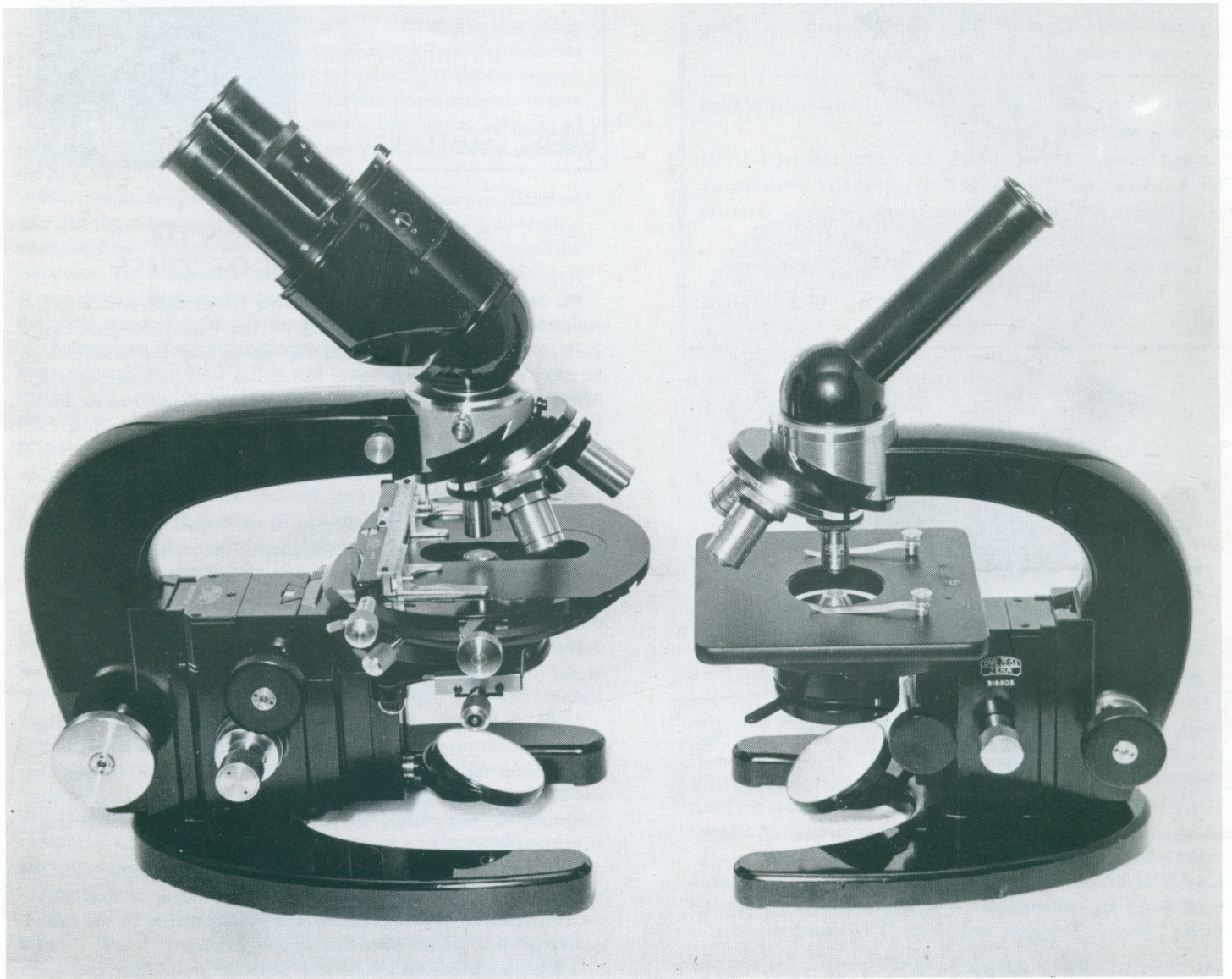


ZEISS HISTORICA

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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.

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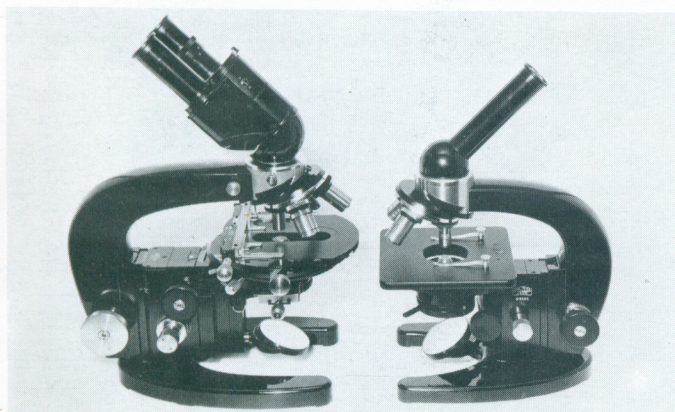
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ON THE COVERS

FRONT COVER: Two versions of the Stand L microscope. On the left is the large research model Stand Lu; on the right is the basic Stand Lg. The Lg could also be fitted with a mechanical stage, a vertical photographic tube, or a binocular tube.

BACK COVER: Zeiss Jena announces three new lenses for a fair in early 1950. All are wide-angles. From top to bottom: 35mm f2.8 Biometar, 25mm f4 Topogon, and 35mm f2.8 Flektogon.

ILLUSTRATION SOURCES

Front cover and Stand L article, Charles Gellis. • Topogon article and back cover, C. Barringer, Jr. • Contessa//Contina article, Larry Gubas. • Bedore exhibition photo by the editors. • Lichtstrahlen: Japanese ad, courtesy Larry Gubas; eyeglass sign, Nick Grossman; Super Nettel ad, C. Barringer, Jr.; Zeiss keys, Charles Gellis.

THE BLUE TRIANGLE

Members Dieter List of Nuremberg and Don Wynne of Chagrin Falls, Ohio, have identified the mysterious blue triangle marking which appears on German military optical equipment of World War II. (A Zeiss monocular bearing this marking was shown in the Fall, 1990 issue of the Journal.) The triangle indicates that the equipment was lubricated with a special cold-weather grease ("Kaeltefett" in German) which made it serviceable at temperatures as low as -40° Celsius (app. -35°F.).

CREDIT TO JOE BROWN

The unusual Zeiss Ikon ad for the Miroflex which appeared on the back cover of the Fall, 1990 issue was supplied by member Joe Brown of San Antonio. The editors apologize for failing to credit its source.



Zeiss then, Zeiss now.

STEPS TOWARDS THE REUNIFICATION OF ZEISS

On November 7, 1990 the enterprises Jenaer Glaswerk GmbH, Jenoptik Carl Zeiss JENA GmbH, Schott Glaswerke, Mainz and Carl Zeiss, Oberkochen reached a general agreement on the measures to be taken to unite the Jena-based enterprises with the enterprises in Mainz and Oberkochen and on the cooperation required to revitalize the Jena firms. The agreement was approved on November 19 and 20, 1990 by the supervisory bodies of the enterprises Schott Glaswerke, Mainz and Carl Zeiss Oberkochen. It incorporates the following objectives:

1. In their endeavours to overcome the economic problems of the Jena firms, the enterprises shall cooperate on the basis of partnership and grow together gradually into a single "Stiftung" (foundation) within the framework of a cooperation agreement. This means that the four enterprises will seek consensus to the greatest possible degree on all important decisions. An exchange will take place at all levels, including an interlinking of personnel in supervisory functions.

2. The four enterprises will work closely with the trust body charged with privatizing East German industry to establish a blueprint for the revitalization of Jenoptik Carl Zeiss JENA GmbH and the Jenaer Glaswerk GmbH. It is the aim of all parties involved to safeguard as many jobs as possible despite the considerable reductions necessary.

3. In view of the contributions made by the enterprises to the economy and employment in their respective geographic locations, the revitalization process shall require the agreement of the state governments of Baden-Württemberg and Thuringia.

4. The enterprises shall unite in a "Stiftung" (foundation) whose seat of business shall be Heidenheim and Jena. The basis of the "Stiftung" shall be the current Heidenheim version of Ernst Abbe's foundation statute compiled in 1896.

This general agreement constitutes another milestone on the road to a common future.

From a November 1990 press release from Carl Zeiss Oberkochen.

A NEW CONCEPT: THE STAND L

Charles Gellis, Roslyn Heights, N.Y.

We are back in time and space. The world is in the grip of an economic depression. The year is 1933 and Zeiss is launching a line of microscopes with a completely new silhouette. Although the optical components are identical to those of the conventional Zeiss microscopes, the new line is radically different in shape. In some quarters there is doubt that these new instruments will be accepted by the scientific community, especially at a time like this.

Zeiss is confident that the Stand L design will bring in new orders for microscopes, and prosperity for the firm. But Zeiss also feels that it is wise not to put all its eggs into one basket. So it will continue to produce the tried and true Stand E. This traditional design is known and used throughout the world's scientific institutions, schools and laboratories. This bread-and-butter line will be continued along with the new Stand L.

What are the features that make the Stand L microscope different? The first impression one gets is of a low silhouette with a beautiful sweeping limb. This curved limb supports the binocular tube and the nosepiece. The nosepiece is quickly and easily exchanged because it is on a slider. The nosepiece holds three or four objectives. With the nosepiece removed, other accessories (also on sliders) can be used.

The focusing controls are placed low and below the microscope stage, close to the foot. The foot now has an elliptical shape in keeping with the beauty of the lines of the instrument. The Stand L is not only modern in appearance, but comfortable to use over long work periods. Zeiss has given much thought to this.

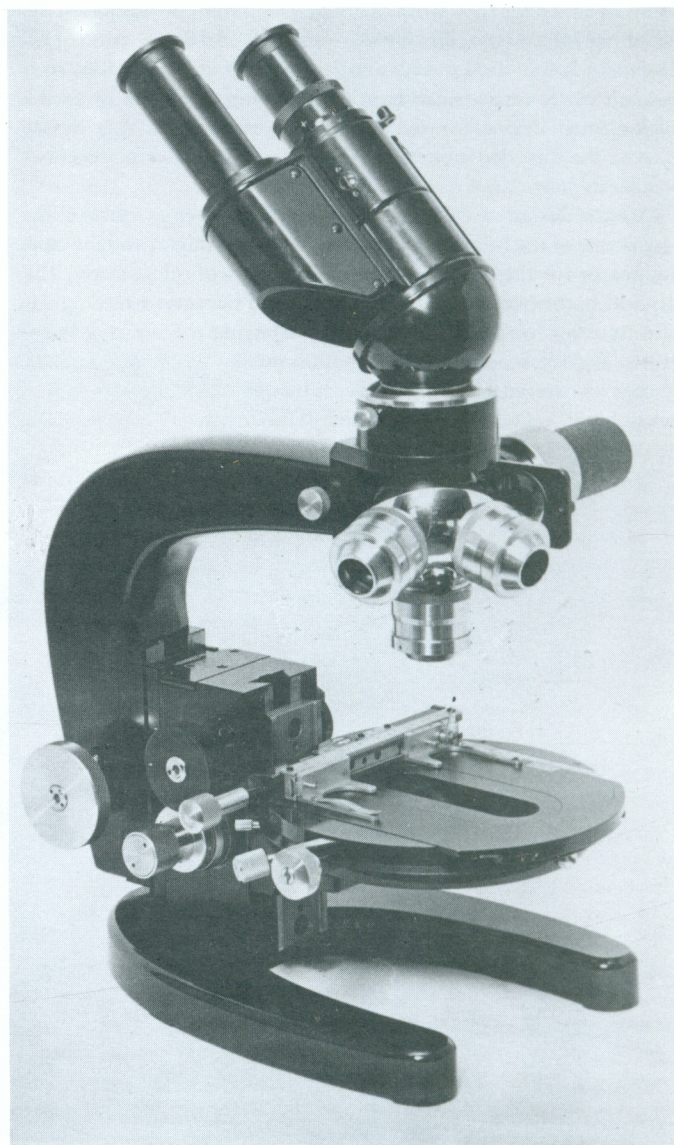
Previous microscopes had inclination joints to tilt the stage and make the microscope, now inclined, more comfortable to use. The Stand L has no inclination joint. The stage is always horizontal — a great advantage when using liquid mounts. Stand L binocular tubes are inclined. A vertical tube is produced for purposes of photomicrography.

Zeiss created the Stand L as a "universal" microscope. Today, we would call it a systems or modular type. As a result, over a period of several years, many additional accessories and devices were made. Several body tubes were developed, so that by a threaded member or a quick-change fitting (as in two models of the Stand L) the tubes could be quickly exchanged.

Since the inclined monocular or binocular tube could be rotated, it was possible for another observer to view the object without moving the microscope. This was a definite advantage in teaching and industry. An eyepiece revolver with four tubes was developed for this purpose, for use by four observers simultaneously.

By 1938, the Stand L was popular and widely accepted in the scientific community, especially in the fields of research and photographic work. For the study of crystals, an important device or accessory was designed. A nosepiece on slider was fitted with an analyzer and a mica or gypsum plate so that the Stand L could be used with polarized light. The condenser below the stage could be readily removed and exchanged for one with a polarizer. Calcite spar prisms were used for both units. The much less expensive Zeiss Bernauer filters could also be used as substitutes.

Within a few years (certainly by 1939) Stand L models were avail-



Stand Lu with Epi illuminator used for the study of opaque objects. Both mirror and condenser apparatus have been removed so that the stage (for very thick or tall specimens) can be lowered. This feature is found only on the Lu model.

able in a variety of types. The basic laboratory model Lg was the least costly. The Lw, somewhat larger and heavier in base and limb, was available with more options, making it more suitable for research work.

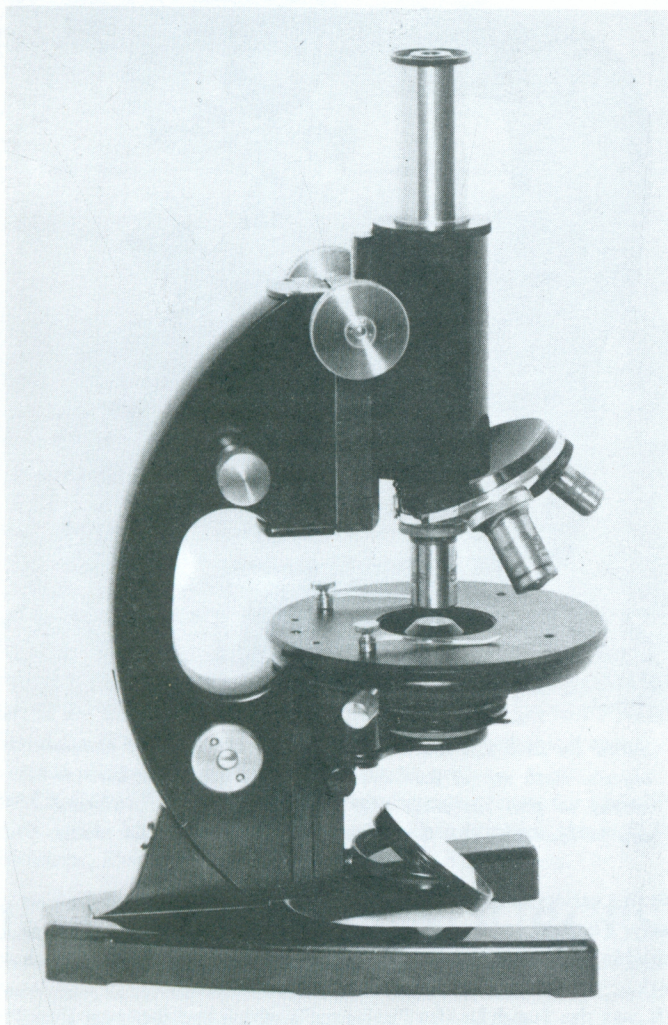
It was the Stand Lu (for "universal") which had the most interchangeable parts. With this microscope, not only were the eyepiece tubes and nosepieces interchangeable, but the stage and complete

condenser unit could be completely removed by the user. A variety of stages and condensers were available for specialized work.

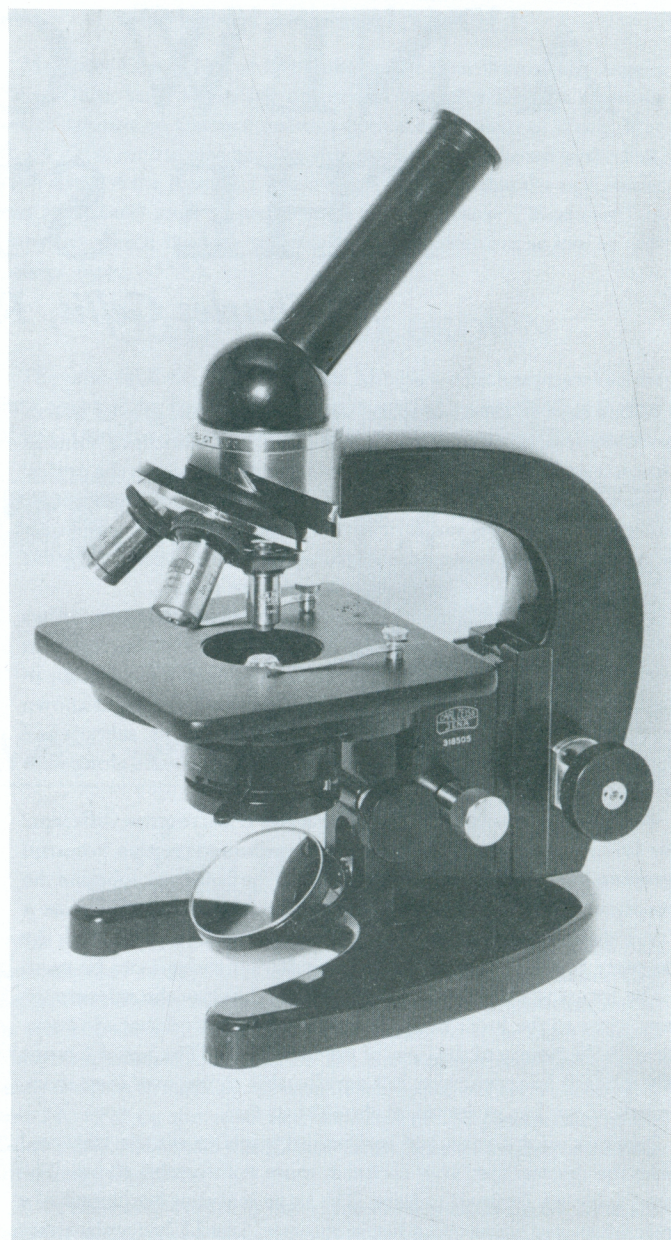
The Stand Lu was also somewhat larger than the Lw model. This handsome microscope featured a separate focusing control for the stage, in addition to the regular fine and coarse controls. After removing the condenser unit, the stage could be lowered practically down to the foot of the microscope for very thick or large specimens, which would have to clear the nosepiece. Zeiss redesigned their Epi illuminator for the Lu so it could also be used for the study of opaque specimens. Each objective of this incident light unit was fitted with its special condenser to focus light on the specimen from above.

As the Stand L models became more complicated, they became larger. Zeiss decided that a much more compact version of the L would be useful for field work. This Zeiss microscope was called the Travelling Microscope, and it was given the model designation of Lr. Essentially it was the Lg with a more compact stage and foot so it could fit easily into a small hard oak carrying case. The Lr used a quick-change device for the observation tube. Later this device replaced the threaded member in the postwar L model microscopes from Zeiss Jena.

With the design of the Lpb (Lumipan) Zeiss gave us a taste of the microscope of the future. The Lpb eliminates the mirror and the table illuminator for the first time in over 100 years of microscopy. The elliptical horseshoe base also disappears, and becomes a rectangular solid housing for a small 8 volt bulb requiring the use of a transformer. A microscope with built-in illumination was a revolutionary concept in design. It completely did away with the setting-up, focusing and centering of an outside light source.



Stand E, the basic laboratory model produced in the late 1920s and 1930s, was predecessor of the Stand L.



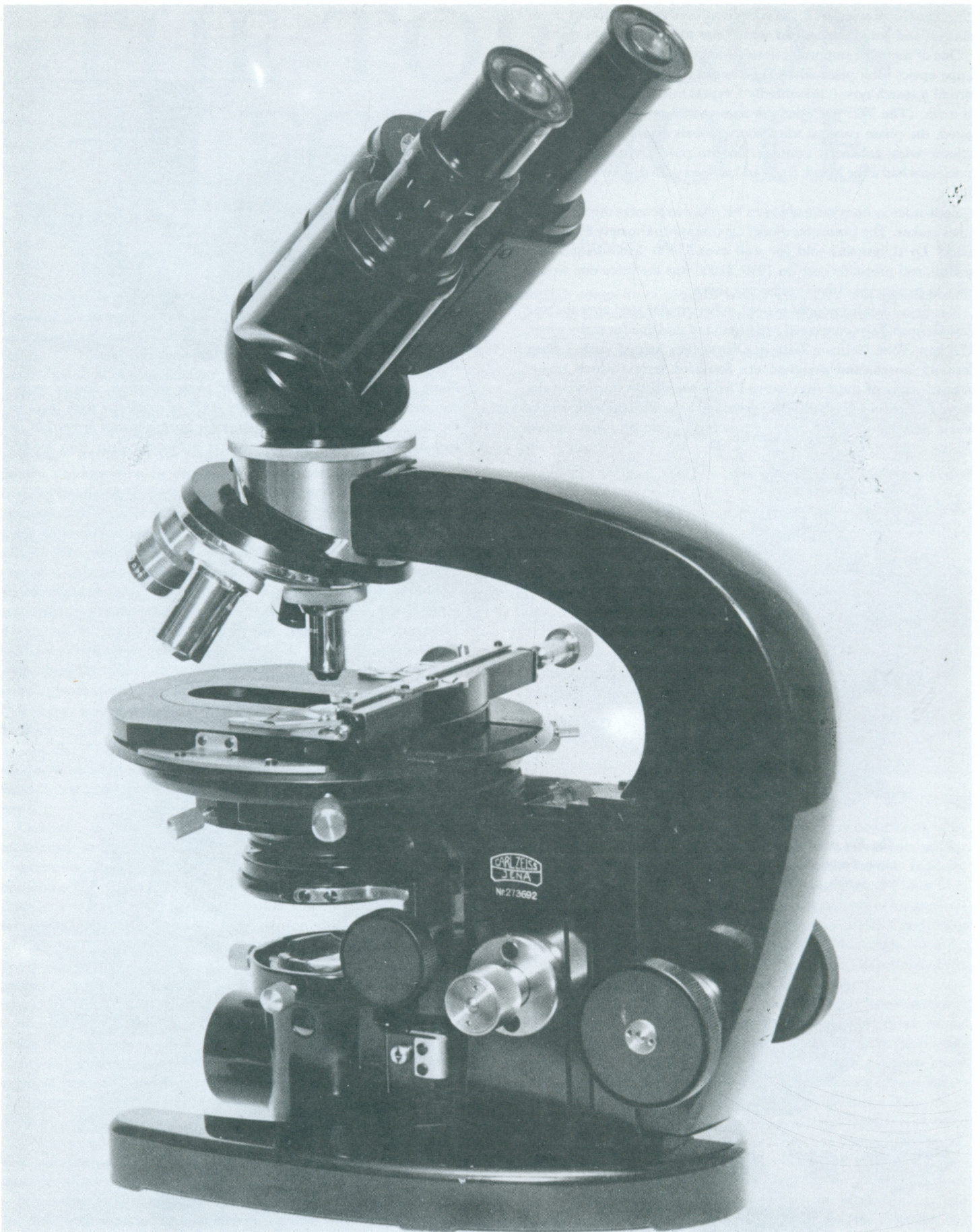
Stand Lg with inclined monocular tube and stage clips.

The Lp model had another unusual feature: a revolver beneath the stage housing not one but three different condensers. By turning this turret, the regular bright field condenser could be quickly substituted for a low-power or a dark field condenser. It looked clumsy and a bit bulky, but it worked. When the Lp was offered for sale in 1939, Zeiss had newly designed optics for it, if you wanted to pay the price. These newly computed objectives were listed as flat field achromats in the catalogs, but were engraved Planachromats on the objective mount. They were another great achievement for Zeiss. The new optics made it possible to photograph thin sections with large format cameras, so that the image would be sharp from corner to corner.

The standard Zeiss achromats at the time did suffer from curvature of field but had excellent resolution and contrast at the center of the field. The more expensive and better-corrected apochromatic objectives were in fact worse. This made the new Planachromats very desirable for photomicrography.

Today we take for granted (even with the least expensive microscopes) anti-reflective coatings on all glass-to-air surfaces. In 1935 Zeiss patented this discovery but did not apply it to the microscope until after the end of World War II.

An even more outstanding development by Zeiss was to occur. In



Stand Lw is an intermediate model, but is considered a research type microscope. Seen here is a small outside illuminator Zeiss designed for it. (Mirror has been removed.)

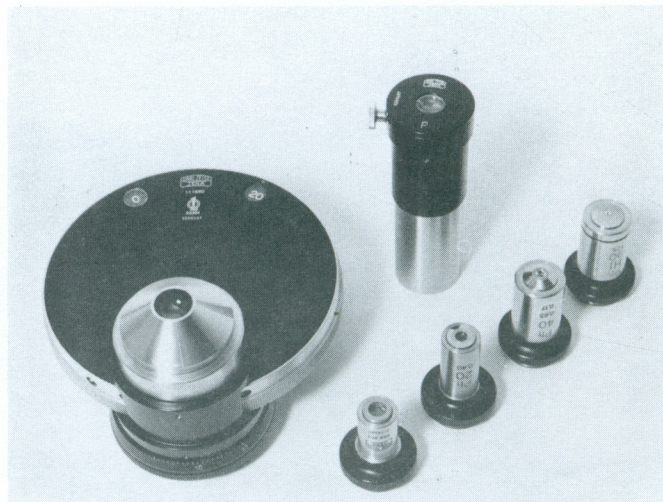
1932, the Dutch scientist F. Zernike discovered the principle of phase contrast and later collaborated with Zeiss to obtain patent rights.

One of the most important developments in the history of microscope optics took place when Zeiss began to produce a few experimental research type (undoubtedly L types) microscopes with phase contrast. (The War put a halt to commercial production.) Simply stated, the phase contrast microscope reveals details in transparent objects with enhanced contrast. In the past, living transparent specimens had to be killed, fixed and stained with dyes in order to do this.

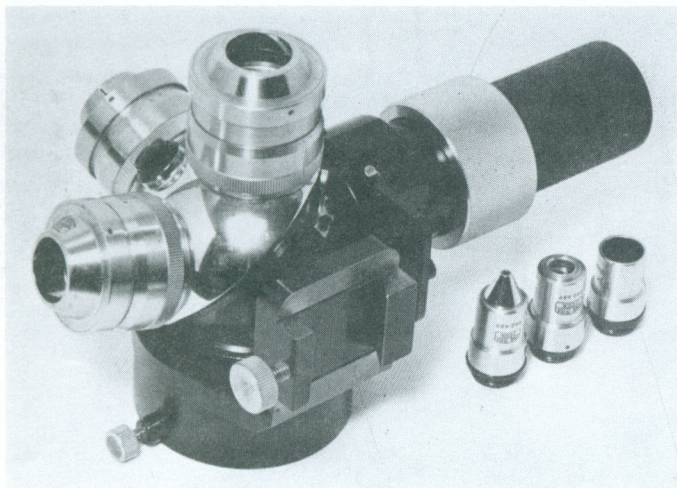
Zeiss microscopes were always a bit more expensive than those of other makes. The binocular model Lg cost approximately \$550. The model Lp (Lumipan) sold for well over \$1000. Innovation, high quality, and precision cost. In 1939, \$1000 was the price one would have to pay for an American luxury sedan.

The Stand L microscopes proved to be popular, and after the war East German Zeiss continued production of this line for many years. The new West German Zeiss in Oberkochen started with a clean drawing board, and designed the Standard series, which incorporated many of the things learned from prewar production of the Stand L. The Stand L design was good and beautiful and influenced a whole generation of postwar microscopes made by other optical firms.

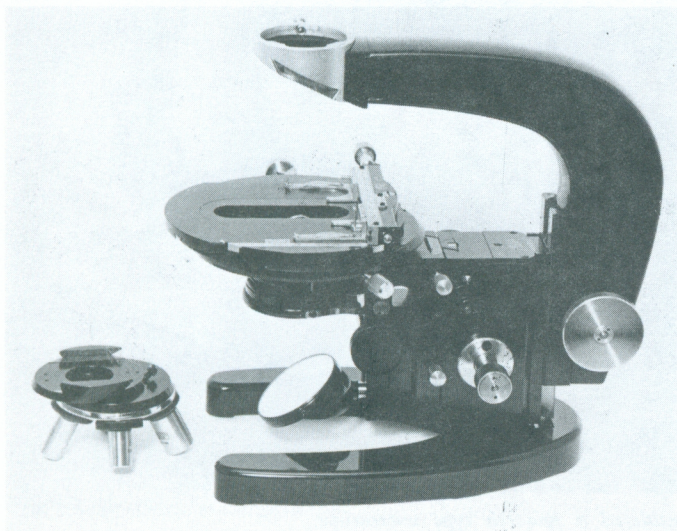
References: Zeiss Micro Catalog 492e, 492 111e, and 542 (German).



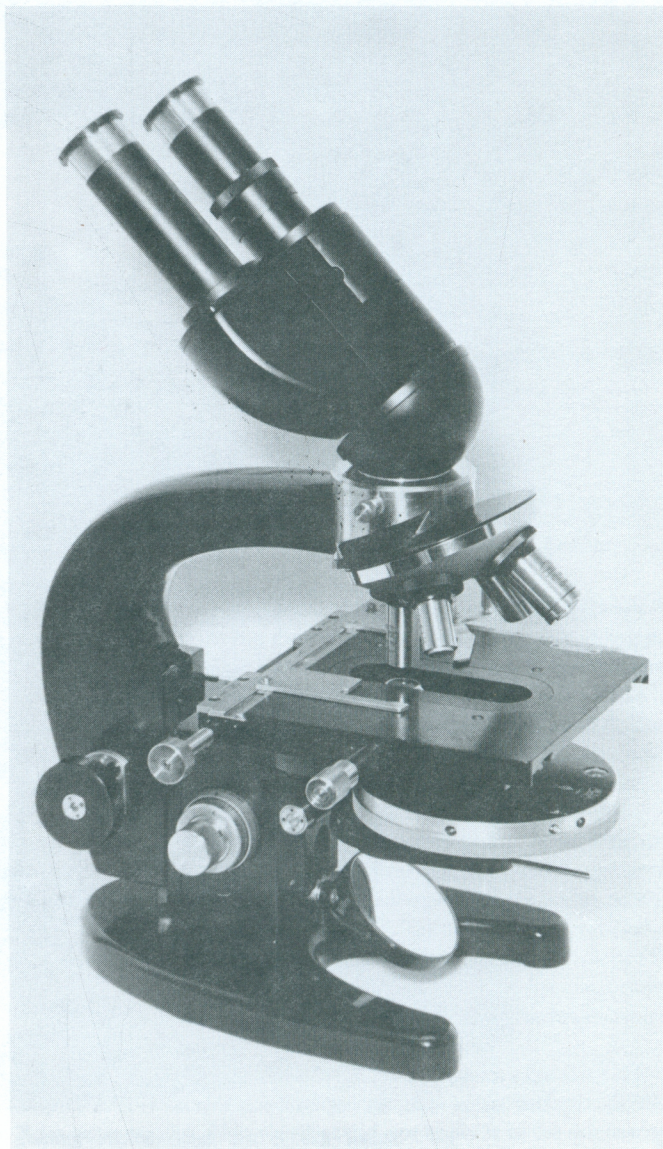
Phase contrast condenser with four phase objectives. Special focusing eyepiece is used to align phase rings of condenser with those in the objectives. Condenser also allows for darkfield and brightfield as well as phase contrast modes. This is a postwar Zeiss Jena model.



The Epi illuminator for the Lu with its objectives shown separately. In use, the objectives are inside the barrel of the Epi condenser.



Stand Lu with binocular tube and objective nosepiece removed.



Stand Lg with phase contrast condenser.

THE TOPOGON —A FOOTNOTE

Charles Barringer, Jr., Haddonfield, N.J.

As detailed in the recent article by Joachim Arnz of Jena, the Topogon has existed in a variety of focal lengths for several formats for nearly thirty years. Despite the extraordinary durability of this design, Topogons rank among the rarest Zeiss lenses, not just in the esoteric world of photogrammetry, but also in the relatively common Contax system. The following article combines fact and speculation in an attempt to explain this apparent anomaly.

Dr. Richter's Topogon proved to be a quantum step forward in wide-angle technology for larger formats. One can visualize the Contax product team in the mid-30s in a meeting at Zeiss Ikon, Dresden indulging in some "what if" thinking, trying to quantify the practical and prestige value of adding a high-performance, high-speed, ultra-wide-angle lens to their world-class Contax rangefinder system. With only the Tessar 28mm f8 lens then available, the prospect of such a lens must have been compelling. Informal contacts between Jena and Dresden might have started a process which would eventually lead to the production of a handful of uncoated 25mm f4.5 Topogons in Contax mount. However, political events intervened before these could be released commercially and these lenses were probably never offered to a civilian clientele. Only two examples are known, from two different series.

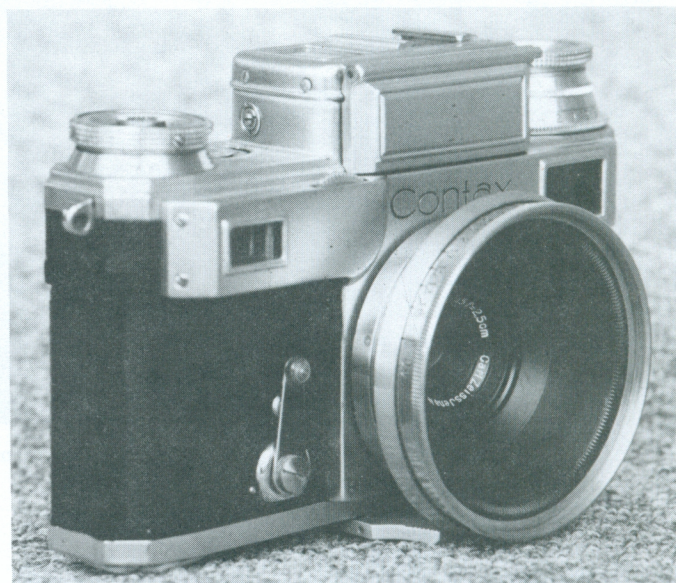
A decade later, the design would be resurrected. It continued as a production lens through the decade of the 50s, for a lifespan of two full decades. Given this lens's recognized superior performance and its special niche in the range of lenses available for the Contax, why were so few produced over such a long period? Why is this lens so rare?

Certainly, one major reason must be the difficulty of manufacture mentioned in the Arnz article. Looking at the cross-sectional diagram, and observing that the overall diameter of the front element of a 25mm f4 Topogon is only about 8mm, one can easily imagine the thinness and fragility of the inner elements, and the attendant rate of failure at the manufacturing stage. In addition, the strong curvature of the elements means that each lens must be cut, ground, and polished individually, unlike the batch process used for lenses of gentler curvature. (As if to prove that Zeiss would not shrink from any challenge, the Topogon was also produced in a 13mm f3.5 configuration for the Movikon 16 during the war. The inner elements must be paper-thin in the center.)

Beyond this technical problem, I think that timing and international political circumstances were major factors in the Contax Topogon's history. Its introduction was delayed for a decade after 1939 by the fighting war. And I suspect that the history of the Topogon as a production lens was influenced by the Cold War, and that its continued production through the 50s reflects political considerations at least as much as technical ones.

It was clear by 1950 that Zeiss Ikon needed several new wide-angles for their well-respected Contax system; a system now ready for reintroduction with redesigned camera bodies and coated lenses. The Tessar 28mm f8 was definitely uncompetitive in light-gathering capability and image quality. The extraordinary Biogon 35mm f2.8,

although competitive optically with T-coating, could no longer be used with the smaller IIa/IIIa Stuttgart-designed Contax because of its large, deep-set rear element. Where could Zeiss Ikon turn for a quick but high-quality fix to the problem?

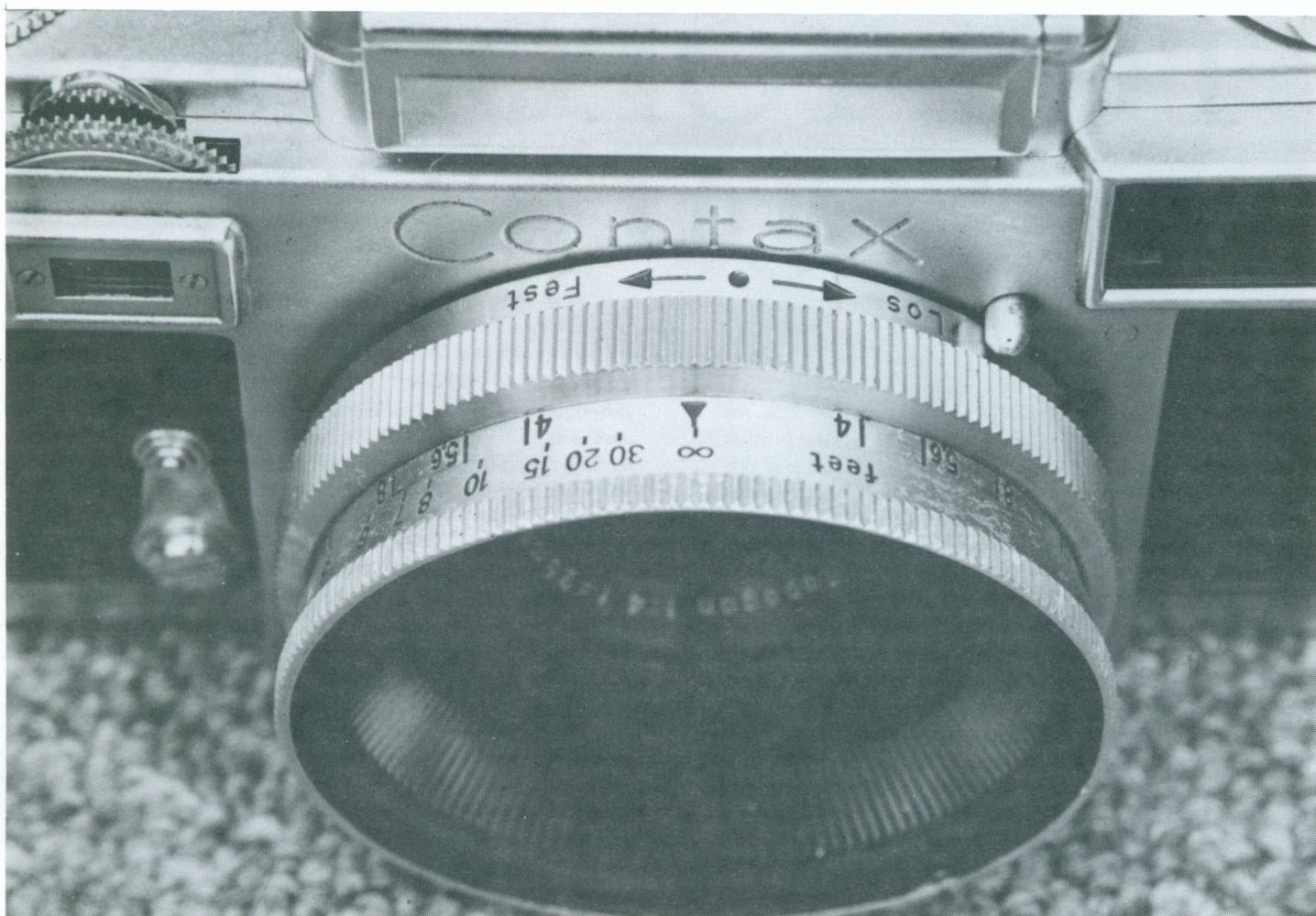


Prewar f4.5 Topogon on Contax III.

The Topogon was an obvious solution. We may never know what became of the Herar and the Perimetar, but they were not retained for final consideration. Dr. Berthele's development of the modern, asymmetrical design which would become the Biogon 21mm f4.5, was, at best, only in its early stages. Market appearance of his groundbreaking new 90° design was several years away. From a marketing perspective, Zeiss needed a solution to the wide-angle dilemma without delay and the Topogon was there. By late 1950 or early 1951 the first series of the reborn Topogon was produced.

Physically, the Topogon is unique among Contax lenses in several of its features. Its small, deep-set elements resemble those of the prewar 28mm f8 Tessar or 35mm f4.5 Orthometar. Like other post-war Jena lenses, the Topogon is in an aluminum alloy mount. There is no provision for coupling the lens with the camera's rangefinder, and its closest focus is just under 3 ft. The wide-flared filter thread acts as a sunshade, while the non-click-stop diaphragm is controlled via a knurled surface inside the flare. There is a 55mm filter thread, but access to the diaphragm control is blocked if a filter is used.

The Topogon's most unusual feature, however, is its breechlock mount, with a rotating collar instead of the normal release tab engaging the camera's external bayonet. To mount the Topogon, the collar is rotated toward "Los" (Loose), the red dots on lens and camera are aligned, the lens is inserted into the mount, and the collar is then turned toward "Fest" (Secure). (A similar mount was used by



Breechlock mount of f4 Topogon.

VEB Pentacon for its reflex cameras, and by Canon for their FL and FD series lenses. Matanle & Wright's statement in *The [Contax] Collector's Checklist* that the standard Topogon was coupled and used a standard external bayonet fitting must have been based on seeing only prewar or experimental versions. The two samples available for inspection use the standard external bayonet mount, even though they are uncoupled. All postwar, production Topogons known to me have the breechlock mount.)

The 25mm Topogon continued to be produced almost to the end of the Contax system. Analysis of 21 reported serial numbers shows six production series, only one of which seems to exceed fifty or a hundred pieces. The one "large" batch was of three to four hundred lenses, hardly a number calculated to put a Topogon in every camera bag. The earliest production Topogons are estimated to date from late 1950 or early 1951, the large batch from '52, while the latest ones are from the late 50s. Ironically, these Topogons are almost certainly the last lenses manufactured specifically for the rangefinder Contax, and are certainly the last Contax bayonet lenses made in Jena, based on my information.

Samples	Serial Numbers		Estimated Production
	from	to	
3	3443109	— 114	50?
2	3466629	— 672	100
9	3510101	— 391	400
1	4000018		100?
2	4821110	— 151	100
4	4891148	— 170	100

In the late 40s, the Zeiss companies in the East and West Zones

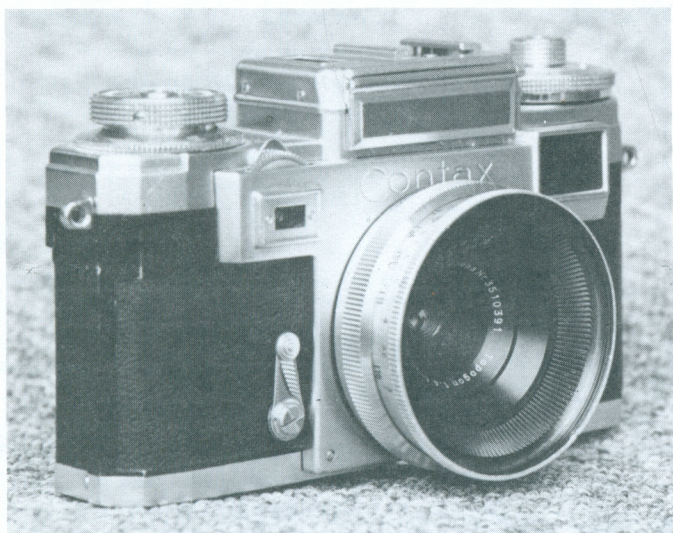
would soon be torn apart by political differences. But there is fascinating evidence that they were still in close contact and cooperating on the technical and marketing levels until 1950. (With 20/20 hindsight, one may conclude that the managements of these two companies, as well as many other Germans, were acting on the belief that the political division of the country would be only temporary.)

One piece of concrete evidence for such collaboration is a Carl Zeiss Jena leaflet heralding the "Messe-Neuheit 1950." Featured were three Zeiss new products presented at the 1950 Leipzig Fair, including the Topogon 25mm f/4 and the Biometar 35mm f/2.8. These were introduced as being "...intended for the new rangefinder Contax IIa from the firm Zeiss Ikon AG, Stuttgart." The accompanying illustration shows the Flektogon 35mm f/2.8 on the new Contax S reflex camera, the Biometar 35mm f/2.8 on a Contax IIa, and a Topogon 25mm f/4 on a Jena Contax II. Close inspection of the image shows that the Topogon pictured does not have the unique breechlock mount, although it cannot be determined if it is the pre-war lens, a pre-production version, or simply an artist's rendering.

The cooperation between Jena and Stuttgart was also reflected in the finders developed and marketed for the wide-angles. Chronologically, the first finder produced after the war was the faithful 436/7 universal finder, with the 28/35/50/85/135mm settings. Its basic design dates from the 30s. The postwar version differed by the presence of a circle in the center of the viewing field instead of a crosshair. By 1950 however, a completely new Jena-made universal finder was also introduced at the Leipzig Fair. Shown atop a Contax II, this finder was apparently never given an official catalog number. Judging by its rarity on the collector's market, very few seem to have been produced before it was replaced by the Stuttgart-made #440 of

similar concept. Both of these finders achieve elegance at the price of reduced field size, compared with the prewar design. The Jena-made version is noticeably heavier and bigger than its Stuttgart cousin. It offers focal length designations inscribed within the fields of view. The user can set the focal length only while looking through the finder, although one can see the inscription while using it. Both finders have settings for 25/35/50/85/135mm lenses.

The Topogon only enjoyed its status as the widest wide-angle lens for Contax for a brief period, at most three years, before the Biogon 21mm f4.5 appeared and swept everything else off dealers' shelves. This should not be thought of as an indictment of the Topogon. Rather, it is a tribute to the Biogon which, by any criterion, was a truly outstanding lens. It was a "state-of-the-art" design, and had the cachet of being the first commercially available lens for 35mm cameras with a 90° field of view. It was also rangefinder-coupled, unlike the Tessar and the Topogon. When the 21mm f4.5 Biogon was introduced, the Stuttgart #440 finder was modified, the 21mm setting replacing the 25. Although technically insignificant, I think that this change was symbolic of the end of the era of cooperation between the two companies.



Postwar f4 Topogon on Contax IIIa.

What is astounding is that the Topogon continued to be produced well after the introduction of the Biogon. I can find no explanation other than the desire of the East German government to establish its competitiveness with the West. The production quantities — a hundred here, a hundred there — simply do not indicate that the Topogon was really intended to compete commercially with the Biogon, nor does the apparent absence of any publicity. Yet production continued anyway.

Ultimately, I think it was preordained that the West German product would prevail over the East German one, at least in the United States, the dominant camera market of the era. To the American consumer of the early 50s, East Germany represented the wrong side of the fence, and East German products were scrutinized not as objects in their own right, but as representatives of a repugnant political and social system. No one would argue that in most cases, especially as time wore on, the quality gap between West and East German goods grew wider. But this was emphatically not always the case, particularly during the brief period before the lines drawn in 1945 hardened into national boundaries.

As I said at the outset, some of the foregoing is speculative; some is opinion. I do not have access to the actual thinking or documentary evidence of what transpired within any of the Zeiss companies at the time of the introduction or the reintroduction of the Topogon. Thus I have relied on what I have read, heard, and observed. As one who

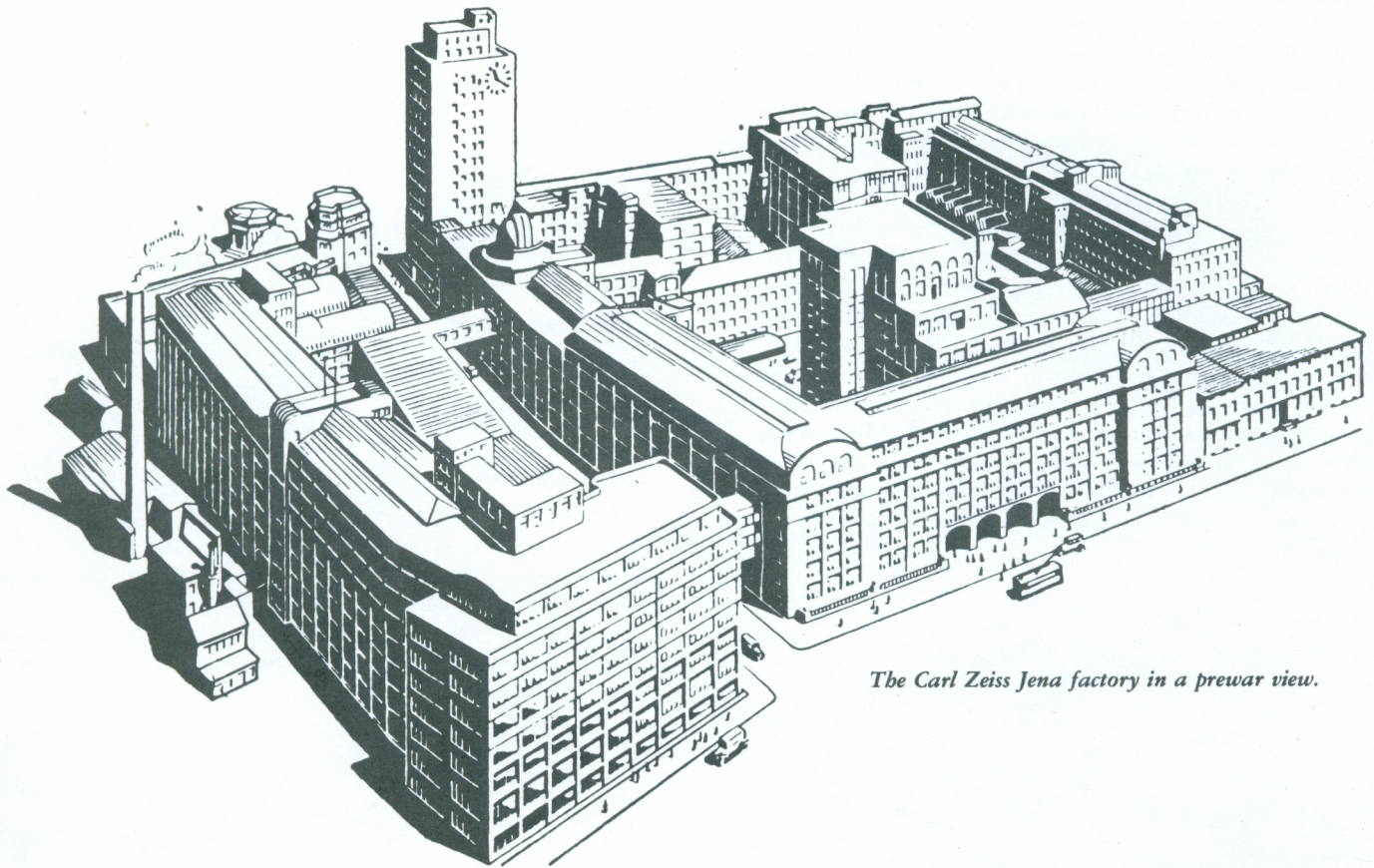


Three postwar universal finders for Contax. Left to right: Stuttgart with 21mm field, Stuttgart with 25mm field, and Jena version.

was born during the Second World War, I do not have the benefit of actual experience in discussing the *Zeitgeist* of the 50s, and would therefore welcome feedback and/or further information on any point from anyone. Documentary or numerical evidence would be particularly appreciated, as would assistance in statistical analysis of the serial number information presented here.



Prewar Topogon f4.5 (top) with diaphragm at widest aperture. Note how much smaller this is than the largest possible opening. This, like the smallest opening (f11), was presumably for flare control. Postwar Topogon (bottom) opens to f4, closes to f16 — an increased range that results from T-coating.



The Carl Zeiss Jena factory in a prewar view.

THE BOMBING OF JENA

Marion Husid, New York City

We should have bombed earlier...not the railroads but the factories.

This conclusion appeared obvious when in 1945, the Equipment Division of the United States Strategic Bombing Survey ended their work. Had the US Armed Forces known earlier what they learned later, the result of the bombings of Jena in 1943 and 1945 might have proved otherwise. Their report tells why.

By unraveling and then reweaving the Survey's fabric, a recognizable yarn emerges: the organization of the industry under the Reichsministry, the importance of Carl Zeiss within the Ministry and in the optics and precision instruments industry, the bombings of Jena, and the final conclusions. (Parentheses cite sources from the Survey, available at the Library of Congress, Washington, D.C.)

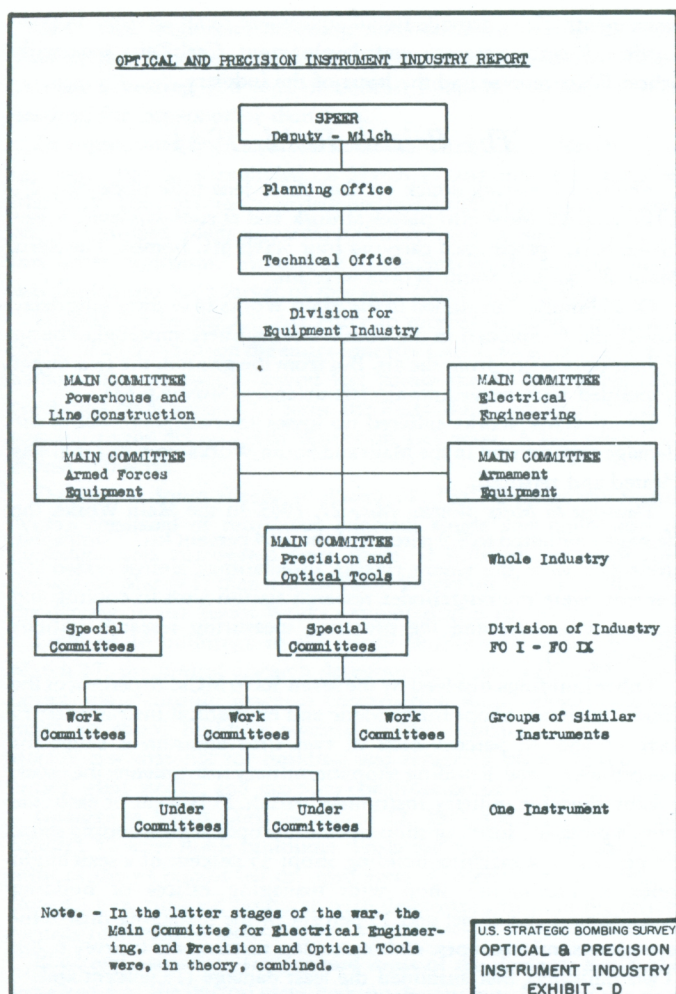
Survey Established

The United States Strategic Bombing Survey was established by

the Secretary of War on November 3, 1944, pursuant to a directive from President Franklin D. Roosevelt. The officers of the Survey were: Franklin D'Oiler, Chairman, and Henry C. Alexander, Vice-Chairman. Directors: George W. Ball, Harry L. Bowman, John K. Galbraith, Rensis Likert, Frank A. McNamee, Jr., Paul H. Nitze, Robert P. Russell, Fred Searls, Jr., Theodore P. Wright. Secretary: Charles C. Cabot. An impressive group.

In April 1945, when US forces entered Jena, the investigation began. All the material gathered came from personal inspection of German plants, from top German Government documents, from interviews and interrogations. "The Survey operated from headquarters in London and established forward headquarters and regional headquarters in Germany immediately following the advance of the Allied armies" (Survey, pp.iii,iv).

Exhibit B of the Optical and Precision Instrument Industry Report



How German industry was organized for the war.

lists the representatives of 18 firms interviewed for this particular report. But only Carl Zeiss and Schott Glass Works, in Jena, and Ernst Leitz, Wetzlar provided detailed information.

Exhibit E, a five page summary report of the entire optical and precision instrument industry from 1940-45, was prepared by Dr. Heinz Kueppenbender (1901-1989) for the survey team in 1945. The document explains how a system of committees functioned under the Reichsministry to coordinate the activities of the industry.

Organization Under The Reichsministry

In 1941, Dr. Kueppenbender succeeded Dr. Kothaus (Zeiss) as head of the Main Committee on Precision and Optical Tools. Under the Reichsministry, this committee represented the entire industry. About a year after Kueppenbender came on board, Albert Speer (1905-1981) succeeded Dr. Fritz Todt (1891-1942) as Minister for Armament and War Production. Speer reported to Adolph Hitler.

From this time through early 1945, Speer organized and reorganized the Reichsministry's committees. Kueppenbender provided continuous leadership, advice, and consultation on the organization of Precision and Optical Tools.

Management of the Industry. The Main Committee was responsible for the management of the entire optical and precision instrument industry. In 1943, this included about 1000 factories, employing well over 160,000 people, working on Navigation, Meteorological, and Ballistic War Instruments; Medical Mechanical Instruments; Watches; Industrial Measuring Air Instruments; Oxygen Equipment; Mechanical Aircraft Measuring Instruments; and Troop Training Instruments.

Much of the committee's information arrived regularly via half-yearly forms which the plants filled out. From these documents the committees determined delivery schedules, whether the allocation of manpower was sufficient, and whether the firms' capabilities could permit more work.

Although the Main Committee determined allotments of raw materials to the firms, their application to specific instruments was made by the concerns themselves (Survey,p.12).

Due to shortages of copper, tin, and steel alloys, the committees set up ways to substitute materials at a predetermined time because construction changed as material changed. These changes required efficient methods to minimize any waste of material and labor. If the changes proved too troublesome or wasteful, the committee's request to return to the original design and material was usually granted (Exhibit I).

Obligations to the Army. The army's requirements came to the Main Committee. To determine whether their requests could be fulfilled as to type, quantity, and delivery time, the Main and Special Committees evaluated their proposals. Once accepted "the time lag between delivery of finished military optical instruments for final assembly into tanks, guns, airplanes, etc., and delivery of such weapons to the armed forces for combat use generally did not exceed one or two months" (Survey,p.2).

With efficient control of allocation and production taking top priority in the Reichsministry, Speer's comprehensive plan of "industrial self-responsibility" could go forward (Albert Speer, *INSIDE THE THIRD REICH*, Macmillan Co., N.Y., 1970,p.208).

Dr. Kueppenbender and Paul Henrichs, also a Zeiss director, were highly respected. Their opinions on the industry "could successfully maintain any policy position they considered of real importance" (Survey,p.6).

Carl Zeiss Jena — Industry Leader

By 1944, the number of workers at all 18 firms surveyed had increased to 44,045, from 31,394 in 1939 (Exhibit B). Each company (some belonging in part to the Carl Zeiss Foundation) is listed by name, number of workers, and amount of floor space. With a cut-off at 2000 workers, only 5 of the 18 firms rise to the surface:

<i>Firm</i>	<i>Workers in 1944</i>	<i>Sq. ft. Flr</i>
<i>Zeiss, Jena</i>	14,060 (incl. 4,000 foreign)	2,500,000
<i>Schott, Jena</i>	4,724 (" 2,000 ")	1,260,000
<i>Leitz, Wetzlar</i>	3,840 (" 850 ")	400,000
<i>Steinheil, Munich</i>	2,947	61,000
(2 plants)		398,000
<i>Voigt., Braunschweig</i>	2,177 (" 2,000 ")	215,000

Jena employed more foreign workers by far. They created special trade schools that trained these workers in six months. (In 1939 and 1944, the 18 firms covered in the Survey employed 26 percent of the industry's workers.) A small number of foreign workers appear on the records in 1940; for the entire industry only 792, compared with 32,175 by 1944 (Fig. 8 Survey). Foreign workers were needed to fill the ranks.

When Speer wanted to draft German women for industry in March 1943, Hitler balked at the idea (William L. Shirer, *THE RISE AND FALL OF THE THIRD REICH*, Simon and Schuster, N.Y., 1960, p.1087). Later, in January 1944, Speer pressed Hitler again to hire more German women because the "...percentage of [German] working women [was] appreciably lower than in England" (Speer,Chap.16,n.10).

Production at Jena. Carl Zeiss Jena produced 50 percent of the optical and precision instrument industry's finished goods because they had glass. They controlled 90 percent of the industry's optical glass production through Schott Glass Works (Survey,p.1). With Schott also manufacturing 90 percent of the glass used in radio tubes and over 90 percent of the chemical and medical glassware, Carl Zeiss

GROSS SALES CARL ZEISS, JENA

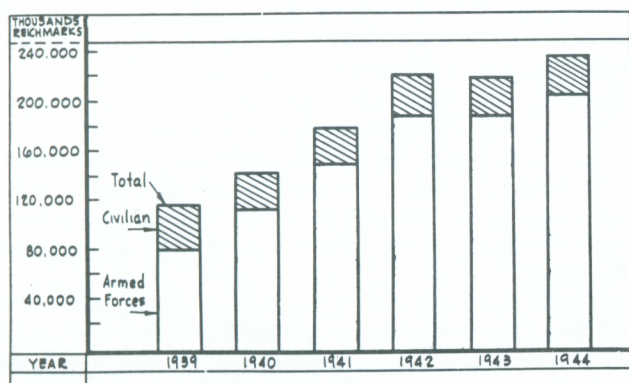


FIGURE-4

Production of civilian products remained high at Zeiss, despite the demands for military equipment.

Jena led the industry (Survey, pp. 3, 5). All of these products found ready world markets in war and in peace.

Export Business. During the years 1940-1944, Carl Zeiss counted about 19 percent of its total sales in exports. Of the total export business, 39 percent consisted of military products, e.g. binoculars, rangefinders, flak computers, bombsights, telescopes, testing instruments and submarine periscopes. Their principal customers were Russia, Bulgaria, Japan, Spain, Greece, Holland, Sweden, Italy (Survey, pp. 9, 10).

The Schott Glass Works "exported about 20 percent of its output during the years 1939 through 1944. Their largest foreign customers were...Japan, Switzerland, and Sweden." Dr. Schott stated that to Japan "Shipments were largely by submarine." (Survey, p. 10).

Schott continued to fill orders despite the optical industry's dependence upon certain essential raw materials from imports during the war years. Borax and boric acid came from the US and no substitute had been found for these chemicals at that time. But prior to the war, Schott amassed sufficient quantities to maintain its performance during this crucial time.

University of Jena. Endowed and directed by Zeiss, the University of Jena offered training and laboratories for developing methods and designs posed by new problems. Even before WWII, their graduates — civilians and officers of the German Armed Forces — received a comprehensive technical education, earning advanced degrees in engineering. It was with Zeiss that the German High Command placed substantial orders for research and development in optics and precision instruments. Their requests stimulated creativity.

As the only manufacturer of submarine periscopes, special bomb sights, large navy rangefinders, and other types of military optical

instruments, Zeiss provided vital equipment to all services. In production, finance, research and development, Carl Zeiss Jena with Schott Glass represented the heart of the industry.

The British Raid, 1943

The first bombing attack on Carl Zeiss Jena took place May 27, 1943 by RAF Mosquito planes at dusk and at roof-top level. Seven planes participated, each carrying four 500lb MC bombs. The Zeiss Main Works and South Works were hit.

Of 28 bombs, 7 exploded in the Main Works (4 of these long delay fused) and 6 exploded in the South Works. There appeared to be no fighter opposition from the air. But from the ground, the Jena target responded with heavy anti-aircraft defenses (Survey, p. 33).

Schott Glass Works suffered no losses (Survey, p. 20). All of the damage experienced in the Main and South Works from this raid was cleared and repaired.

Damage to Main Works, May 27, 1943. In the Main Works, the damage amounted to 9.9 percent of the 10.4 percent loss. Completely destroyed were the emery rinsing installations; almost erased (90 percent) were the rangefinder research station with its cooling and heating chambers and the precision measuring research stations (Survey, p. 21).

Other buildings disabled by the seven 500lb MCs: 20 percent of the final adjustment shops for geodetic and mechanical instruments; 15 percent and 10 percent each of two final adjustment shops for rangefinders (one, a milling shop for military instruments; the other, a lathe shop for military instrument parts); 15 percent of each: the punch press and forming shop and the raw optical glass cutting shop; 30 percent of a machine-building shop; 35 percent of a searchlight reflector production shop with managing offices of building construction and tools; and 15 percent of the managing offices for eye-glasses, microscopes, and measuring instruments (Survey, p. 20). Two buildings that sustained the least damage (15 percent and 10 percent) tested and assembled large submarine periscopes on the top floors.

The South Works buildings, where six 500lb MCs exploded in the area, housed the metal foundry, a castings stock shed, and sheds for raw material and half-finished products. Approximately 3.54 percent of the buildings were damaged. All were repaired (Survey, p. 21).

One air raid warden was killed when the bomb he discovered went off by a delayed-action fuse. Destruction here was minimal. Less than one percent of the machine tools in both works were damaged, and in only two weeks production returned to pre-raid levels (Survey, p. 22).

In February 1943, before the RAF struck, the US Strategic Air Forces in Europe decided against targeting Carl Zeiss Jena at that time. One of the main reasons given in the Target Potentiality Report No. IIE was "the evidence of the existence of large stockpiles of optical glass" (Survey, p. 37). But the Equipment Division found that these stockpiles were not for the construction of high-precision instruments such as submarine periscopes, bombsights, and aerial camera lenses. They were more or less for standard items such as binoculars and small rangefinders. Although the British Ministry of Economic Warfare had in 1943 designated Carl Zeiss Jena a vital factory in primary war industry, other targets of "the most critical economically and strategically" locations were chosen (Survey, p. 37).

The American Raids, 1945

Not until 1945, about one month before US troops occupied Jena, did the American Eighth Air Force target Carl Zeiss Jena. On March 17, 1945 they dropped ninety 500lb GP bombs (22.5 tons). Two days later on March 19, they returned to unload their cargo on the Zeiss Main Works, thirteen 500lb GPs and two 260lb fragmentation bombs; 15 bombs altogether weighing about 3.5 tons (Survey, pp. 23, 24, 29).

Both these high-level bombing raids occurred during overcast weather; they relied on instruments. The two attacks included 268 B-17 planes, bearing 778 tons of bombs. Many of the bombs were destined for targets other than Jena.

Of approximately 26 tons unloaded on March 17 and March 19, in fact, only 19.5 tons exploded on March 17 and only three tons on March 19. The other tonnage dropped had either near misses; landed on open ground, roads or yards; malfunctioned; or went off with "a low order explosion." According to the Survey, the bomb density was inadequate for a target of this type (Survey, pp.23-30).

Singled out by the US Air Force to receive its most significant strike, of all the raids on the entire industry Carl Zeiss Jena was hit the hardest. Twenty-two thousand feet below the B17s stretched the combined plant areas: 47.5 acres, the Zeiss Main and South Works, adjacent to the Schott Glass Works on 46.9 acres. A vast spread — almost 100 acres.

Damage to South Works — March 17, 1945. Because the South Works consisted of reinforced concrete single and multi-storied buildings, and corrugated steel sheds, it suffered less from fire damage on March 17 than did the Main Works on March 19. Most of the damage in the South Works amounted to waste by blast.

Eight of 16 buildings in the South Works were wiped out on March 17: the optical research department, optical polishing shop, optical glass cutting; machine construction shop; telescope semi-finishing shop; building material stocks; machine construction stocks; raw material for building and repairing plant equipment; optical glass stocks; and machine construction parts stocks.

Damage to Schott Glass — March 17, 1945. Only 17 percent of Schott's 47 acres holds buildings. From the high-level bomb-drop, most of the 44 bombs fell on open areas. (Three of them malfunctioned.) Few finished products were destroyed and all of the office records remained in tact.

Blast and secondary fires caused most of the damage. Seriously impaired was the optical glass-making department, "... and the clay laboratory (including offices), the physical laboratory, and the clay milling department were burned out." Bombs also demolished Schott's electric, gas and water mains, thereby disabling the facilities for melting glass (Survey, p.29).

Air raid precautions here were effective, especially a large underground shelter, and a blast protective wall "in front of buildings that housed precision controls." The main research and development labs experienced no disruption, as well.

Because his records were saved, Dr. Schott was able to provide accurate information on expenses, materials and maintenance to the 1945 survey team. He said that 10 percent of the plant's capacity to operate already had been cut short before the March 17, 1945 raid, due to the lack of coal (for making gas) which resulted from the bombing of the railroads. Losses incurred from this attack were minimal (Survey, p.30).

Damage to Main Works — March 19, 1945. Secondary fires accounted for the obliteration of the Main Works. Here, fire annihilated a chemical laboratory north of the lathe and milling shops building, spreading to three other buildings. Compounded by a gasoline explosion, the fires raged. It took five hours to quell the conflagration, with help from the South Works fire department and a pump from the Schott Works (Survey, p.27).

Plant officials believed their fire protection apparatus was adequate. The buildings had fire walls. Yet, the survey team learned that only in one case had these fire walls extended through the roof. Also they found few fire-resistant doors in the buildings, which would have isolated these areas. In many rooms they found no doors at all. In addition, tarpaper-covered overpasses connected sheds that were packed together like sardines. To survive rampant fire would have been miraculous.

Thirteen Bombs Wrought Heavy Devastation. Three buildings were totaled: one containing the optical stocks, final adjustment

shops, and a petroleum pump station; another, housing the transformer and switching stations; and a third maintaining the optical research department, micro-milling, and the managing offices.

Three other buildings met with almost 100 percent destruction: one suffered 84.5 percent loss of the lathe and milling machine and final adjustment shops; the second lost 75.8 percent of their high voltage compressors and medical laboratory; the third, 63.1 percent of its grinding department, microscope, photo and testing laboratories.

One building that remained in one piece held tool stocks, geodetic and precision measuring shops, automatic lathe shops, binocular adjustment shops, and the geodetic final adjustment shop. Four buildings sustained losses of less than 26.2 percent (Survey, pp.24-25).

When the Allies entered Jena on April 13, 1945, Zeiss was still repairing the damage from the mid-March raids. The survey team learned then that the plant had reached only 30 percent of its pre-raid production, 14 days after the raid. A minimum of three months would have been necessary to reach pre-raid figures. This could have been accomplished by reducing civilian production and by dispersing the work among other plants. But the damage to finished and semi-finished products would have taken about seven months to replace (Survey, p.25). The survey team considered aspects of all three secondary target raids.

Conclusions

What did the Germans experience? The Germans strained but they survived. In 1943, increasing air attacks encouraged plans for dispersal. But for some plants, these measures already had been taken during the early part of the war. For example, Schott's completed optical glass plant in Swiesel (near Munich) existed, ready to operate when necessary.

At Jena, air raid shelters were built below and above the ground, and two underground finishing shops, Albit and Schmaepel, operated (Exhibit E, p.3). Indeed, the RAF Mosquito raid in May 1943 met with effective anti-aircraft defenses. But by mid-1944, Zeiss reduced these defenses, replacing them with smokescreens and light anti-aircraft. "The Germans (information from Zeiss officials) thought that the Allies wanted to save Zeiss because the Allies needed Zeiss in the control of German economy and for future development of optical equipment and optical glass" (Survey, p.33).

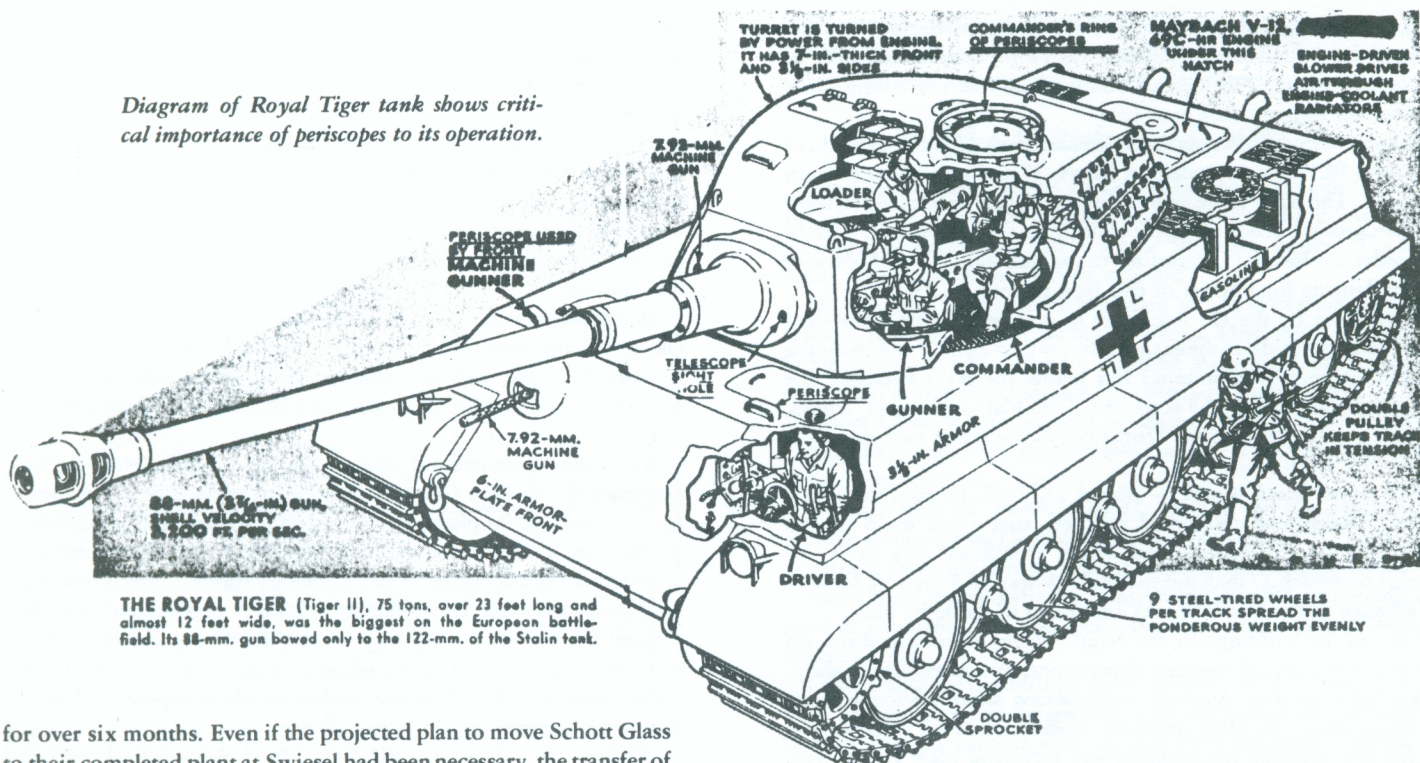
Speer at the Reichsministry recognized the expediency of preserving this economic advantage for the future. Since January 1945, as news from the fronts grew worse, heated debates took place in Berlin. Hitler commanded all military, industrial, transportation and communication installations to self-destruct. Speer urged Hitler to leave the nation every possibility to reconstruct itself in the distant future (Shirer, pp.1103-04).

The Germans felt the first threat to the precision and optical industry when the Allied Air Forces "systematically bombed the German railroad and transportation systems. This disturbed the flow of raw and finishing materials and delayed the delivery of parts and groups of equipment. Production in the last few months, February - March 1945, fell behind. But by concentrated effort this industry was able to keep up with the producers of weapons, tanks, etc." (Kueppenbender, Exhibit E, p.4).

Findings of the US Survey Team. To the United States survey team other aspects appeared more relevant. For one, Carl Zeiss records showed that Jena depended largely on electric power. Their combined use of electricity amounted to 3,214,000 kilowatt hours per month in 1944. Bombing power plants would have seriously disrupted operations.

They also found that damaged finished and semi-finished items took longer to repair than did buildings; therefore, the loss of these important goods — not the buildings — could set back production

Diagram of Royal Tiger tank shows critical importance of periscopes to its operation.



THE ROYAL TIGER (Tiger II), 75 tons, over 23 feet long and almost 12 feet wide, was the biggest on the European battlefield. Its 88-mm. gun bowed only to the 122-mm. of the Stalin tank.

for over six months. Even if the projected plan to move Schott Glass to their completed plant at Swiesel had been necessary, the transfer of skilled workers from Jena would have deprived the firm of from three to four months activity, until pre-raid production reached normal.

The US survey team addressed the issue of whether to search and destroy submarine facilities, when the equipment necessary for their periscopes and gun sights should have been primary targets. "...To bomb both submarine production and submarine periscope production" is a "duplication of effort" (Survey,p.38), since the fighting man must "see before he can successfully achieve his mission" (Survey,p.34).

Even the assembly and testing of the large periscopes and gun sights on the top floors of the Zeiss Main Works contributed to their vulnerability.

Although every plant experienced the lack of transportation due to bombings and the lack of coal due to the lack of transportation (it was difficult to do precision work without heat), "the effects of even a temporary knocking out of such a large percent of the industry's essential glass supply would...be noticeable at least six months after the attack" (Survey,p.38).

May 1943, might have been a decisive year to effect a primary raid because it would have immediately denied "the German Army, Navy and Air Force vital instruments and equipment" (Survey,p.38).

"The Jena optical industry [in 1943] should have been considered as a special target...[having] a prompt effect on German combat efficiency" (Ibid).

What would have happened later had the Eighth Air Force acted earlier, remains pure conjecture. For the cosmic moment, Carl Zeiss is alive and well in Oberkochen. The fate of Carl Zeiss in Jena remains to be seen.

Several months ago Nicholas Grossman, who is always on the lookout for Zeiss members' interests, supplied a xerox of the document from the Library of Congress, Washington, D.C.: "Optical and Precision Instrument Industry Report," *The United States Strategic Bombing Survey*, Equipment Division, August 8, 1945; 1st edition October 23, 1945; 2nd edition January 1947. The report is comprised of 38 typewritten pages (single-spaced), with 23 Exhibits (From A-W), 19 Photographs, and 11 Figures. It represents only one of 200 detailed studies of the European and Pacific conflicts in WWII.

A selected bibliography from the *Zeiss Historica Journal*, listed by year from 1982 through 1990, corresponds to Carl Zeiss's activities during the war years:

- Spring 1982. Grossman, "The Question of German Optical Codes," p.5.
- Autumn 1982. Kuc, "Contax SLR Cameras."
- Spring 1983. Gubas, "The Tenax X-ray Camera."
LICHTSTRAHLEN: In Memoriam: Hubert Nerwin.
U.S. Marketing of Contax SLRs.
- Autumn 1983. Grossman, "New Light on German Optical Codes."
Gubas, "Paul Rudolph's Carl Zeiss Photographic Lenses."
Gubas, "The Tenax I and its Successors."
" Important books on Zeiss in the N.Y. Public Library.
- Spring 1984. Grossman, "Zeiss Abroad."
Gubas, "The Birth of Zeiss Ikon."
Kuc, "Kiev Cameras." (Jena after WWII.)
Pins, "Contax Military Camera: Myth or Reality?"
- Autumn 1984. Gubas, "Zeiss: the Postwar Years."
- Autumn 1986. Grossman, "A Zeiss Military Magnetic Compass," p.15.
Zartarian, "More on Carl Zeiss Jena Binoculars," pp.8,9.
- Spring 1987. Grossman, "Two Carl Zeiss Departments," pp.12, 13.
" "Zeiss 4-Meter Stereo Rangefinder," pp.4,5.
- Spring 1987. Grossman, "Zeiss in the Netherlands," pp.8,9.
LICHTSTRAHLEN: Ad from Die Wehrmacht December 1938.
- Autumn 1988. Grossman and Abel, "Zeiss Mechanical Measuring Instruments," pp.8,9.
Takeda, "Ernst Abbe and the Foundation," pp.14,15.
- Spring 1989. On back cover, a reprint of an article entitled, "Zeiss Claimed by Communists, Capitalists."
- Autumn 1989. Bisschops, "The Development of Lens Coating," pp.4,5.
- Spring 1990. Gubas, "More on Kueppenbender," p.2.
" "Zeiss Binoculars," pp.5-14.
- Autumn 1990. "WWII German Manufacturers' Codes," p.7.
Zartarian, "Carl Zeiss Jena Binoculars of World War II," p.16.

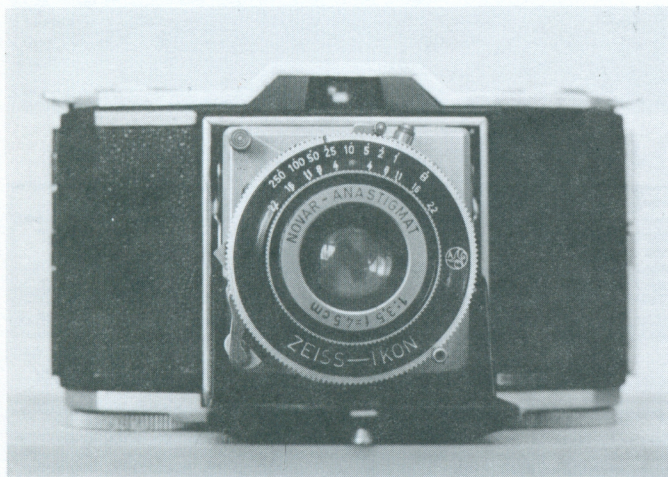
ZEISS IKON'S FIRST POSTWAR CAMERA FAMILY

Larry Gubas, Randolph, N.J.

The period immediately following World War II was very difficult for Zeiss Ikon. All of the sophisticated 35mm cameras in their product line prior to the war had been designed and manufactured in Dresden. The American forces had bombed Dresden fiercely and captured the city before turning it over to the Russians. Zeiss Ikon had thus lost its main location for design and technical manufacturing. The Russians moved the remaining Dresden assembly materials to Jena. They then took them to Kiev in the years immediately after the war.

The caretaker management of the parent company in Jena now attempted to wrest control from prewar management which was domiciled by the US Army in Oberkochen, a tiny town in the Swabian Alps, some miles from Stuttgart. This split the company in two. Jena did manufacture a limited number of prewar-design Contax II cameras from 1945-1948. But, by and large, the western Zeiss Ikon plant in Stuttgart was to serve as the potential location for new sophisticated cameras from the firm.

Many skilled employees had been taken into the army in the last years of the war and had been killed or captured. Those captured by the Russians were held prisoner until 1948 or later. The Berlin factories were nearly useless and, prior to the war, they had concentrated only on box cameras and darkroom equipment.



Ikonta 35/Contina I. The name Ikonta was used on the early version only. After 1948, Contina predominated.

The Stuttgart facility was in excellent shape. But it would take time until its sophisticated assembly practices could be redesigned, financed and implemented for a new Contax and SLR Contaflex. Prior to the war the Stuttgart factory had manufactured only rollfilm and plate cameras. These included the Super Ikontas which could still be manufactured despite the shortage of photographic lenses, bellows leather, tools, and other materials. In any event, the days of sophisticated bellows cameras were quickly coming to an end.

It was important that Zeiss quickly reenter the 35mm market with new products. And it was clear that the redone Contax IIa could not be put into practical production until 1950 or later. It was up to Hubert Nerwin to devise a new, modern family of 35mm cameras which could be manufactured quickly, easily and without a major new investment in setup time and equipment. Immediate revenue



Contina II. This version of the name would last through various improved models until the late 1960s.

was necessary to provide cash flow until the new cameras could be manufactured profitably.

Nerwin was determined that the new designs be innovative and clean. They should not be seen as copies of other designs like the Leica or Retina. So he returned to an idea that he had outlined in 1940-41 when commercial camera design was prohibited in Dresden by the government.

The result of his work was the small Ikonta 35 that was conceived to become part of a family of Zeiss cameras which included the various models of the Contina I & II and the Contessa 35. These cameras were designed to be built from the same basic design with interchangeable parts and, more importantly, with the same production equipment. The features of these designs included:

Compactness — They folded and were easily pocketable.

Familiar Lenses — They used front-element-focus lenses similar to those of the Ikontas and had the same basic layout for shutter and lens opening controls.

Modern Design — They did not use a visible bellows.



Contessa 35. The 35mm equivalent of the Super Ikonta BX with built-in rangefinder and light meter.

Instead, a sliding metal cap covered an interior bellows system.

Easy Manufacture — Tools available in Stuttgart could be easily adapted for manufacture.

Some New Technology — The designs used a new, sophisticated but not mechanically elaborate double and blank exposure prevention device.

Automatic Exposure Counting — A new built-in exposure counting system was included.

New Knob Orientation — Newly designed and separate winding and rewind knobs were built into the bottom, not the top, of the cameras.

Many of the cameras' features were based on the Ikonta/Super Ikonta designs. However, there were a number of innovations. They were to be physically symmetrical cameras with the lenses in the center of the front bezels and not to one side. This was unlike the typically larger side for film sprocket/counter mechanisms. Nerwin put these mechanisms on the underside of the cameras which gave them a unique smaller shape.

Nerwin left Zeiss in 1947 and came to the United States via "Operation Paperclip" to work for Graflex. The first version of his new cameras became commercially available in the United States in late 1948.

Zeiss had learned many marketing lessons in the years prior to the war. One was to make complicated camera measurements easy for the average user. So they incorporated into their camera design what they called the "red dot system." If you set the camera at 1/25th of a second, set the aperture at f8 and the focus at 18 feet, you had a depth of field that extended from 8 feet to infinity. The design incorporated a red dot at each of these settings. As a result you turned your expensive camera into the equivalent of a box camera.

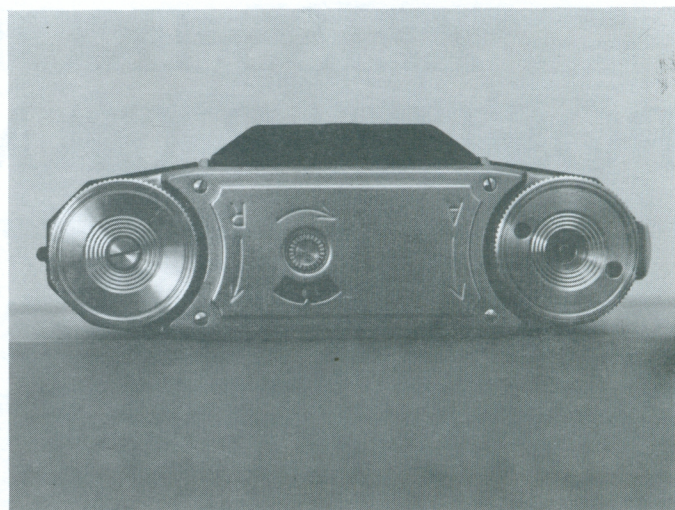
The camera family grew from a simple 35mm to include a non-coupled rangefinder version (Contina II) and then a coupled rangefinder with an uncoupled exposure meter (Contessa 35). Over time the shutters improved from basic Klio 00 to Synchro Compur.

Zeiss went out of its way to build simple but effective accessories for these cameras. The everready cases were the finest of their time, and designed so the camera simply snapped in and out of the case. (There was no tripod socket on the cameras since they were designed to be small and compact.) You could also advance the film neatly through the base of the everready case. Filters (including the Bernotar polarizer) were available in screw-in 27mm and slip-on 32mm sizes. This was the same size as the Contaflex accessories of 1954, and it provided another cost-saving benefit.

Immediately after the war, it was difficult to obtain Zeiss lenses. First, there was diminished capacity in Jena, now under the control of the Russians. Schott's new West German glass factories had to be started from scratch in Mainz. Zeiss Ikon did not get top priority in receiving new lenses. It was far more important to Schott to sell its glass for cash. This meant selling to American government projects and cash-paying customers like Schneider, Steinheil and Rodenstock. Carl Zeiss did have some access to manufactured photographic lenses but these too were sold for a profit to Rollei, Linhof, and others before Zeiss Ikon was considered. So instead of Zeiss Tessars, there were Schneider Xenars on Super Ikonta A, Ikonta and Contina cameras. While Schott was and is a Zeiss Group company, it sells glass products within the Group at the same rate as to outside firms.

I am not completely sure, but in view of the dates of the cameras and the dates of the lens designs, and as a result of my personal observations, I would hazard a guess that all of the Tessar lenses which appeared on these cameras were of Zeiss Opton origin. If any appeared as Carl Zeiss, they would only be on the Contessa 35 or on cameras repaired at a much later date.

My data is based only on primary US sources. "Zeiss Cameras, 1945 - 1975," that fine reference work by Bernd K. Otto and Kurt Juettner, documents 14 different versions of the Ikonta 35/Contina I



The novel design of Hubert Nerwin: key controls for film transport mechanism were built into the base of camera. A=Advance; R=Rewind.

camera. These include Novar f4.5 lens versions which were not imported to the US.

This attractive and usable family of cameras helped Zeiss bridge the difficult postwar years until the appearance of Contax IIa and IIIa and the new and very commercially successful Contaflex SLR design.

In the United States, Dr. Karl Bauer, who had transferred from Carl Zeiss in Jena in 1926, was still responsible for the management of Carl Zeiss, USA — now under the direction of the Alien Property Office. After the war he imported these cameras and other Zeiss products (from both the East and West enterprises) into the United States until the East German enterprise appointed another company (Steelmasters) to represent it in the United States. This is why the East German Contax S was not sold by Carl Zeiss USA, who still had access to other East German products.

Size and Weight of the Camera Family

Model	Bestell Nr.	Weight	Dimensions
Ikonta 35/ Contina I	522/24	16 ounces	4 3/4" x 2 7/8" x 1 3/4"
Contina II	524/24	20.5 ounces	4 3/4" x 3 1/4" x 1 3/4"
Contessa 35	533/24	21.5 ounces	4 1/2" x 3 1/8" x 1 5/8"

US List Prices

Camera	Lens	10/48	10 & 12/49	5/50	8/50	10/52	8/53	1/53	4/54	1/55
Ikonta 35/ Contina I	Novar F3.5	75	64	64	70	78	72	56	56	---
	Xenar F2.8	91	91	95	---	---	---	---	---	---
	Tessar F2.8	---	103	103	110	120	108	89	77	60
Contina II	Novar F3.5	---	---	---	---	88	88	74	63	49
	Tessar F2.8	---	---	---	---	126	126	110	84	63
Contessa	Tessar F2.8	---	---	188	195	214	204	153	142	142

Versions Imported into the US

Model	US Years	Shutter	Lens
Ikonta 35	1948-50	Klio 00	45mm Novar F3.5
	1950-52	Prontor S	45mm Novar F3.5
	1950-52	Compur Rapid	45mm Xenar F2.8
	1950-52	Compur Rapid	45mm Tessar F2.8
Contina I	1952-55	Prontor SV	45mm Novar F3.5
	1952-55	Prontor SVS	45mm Novar F3.5
	1952-55	Synchro Compur	45mm Tessar F2.8
Contina II	1952-55	Prontor SVS	45mm Novar F3.5
	1952-55	Synchro Compur	45mm Tessar F2.8
Contessa 35	1950-52	Compur Rapid	45mm Tessar F2.8
	1953-55	Synchro Compur	45mm Tessar F2.8



"SOMETHING ZEISS TO SAY..."

Greg Bedore's business card reveals one of his avatars — commercial photographer. He also dreams of having his own jewelry store. And in yet another aspect of this active energy, Greg Bedore has "Something Zeiss to say." (His own words.)

His collection of Zeiss Ikon cameras from the early 1900s to 1972 (about 150) began five years ago. His Zeiss List XIV carries 142 entries plus a notation of 17 more, not listed.

Before deciding to focus on Zeiss Ikon exclusively, Bedore had amassed an assortment of 300 cameras. By selling them off, he acquired enough funds to begin his Zeiss collection. He's still not finished.

He has spent a minimum of \$50. for the common folding model to more than \$2500. for rarer cameras. "Some people give the cameras away to save them from decay and neglect..." Bedore is happy to become their caregiver.

Bedore wants to take his "Time Machines" on the road. He reconstructed a scarlet and silver-lined display case, 8'x15½' (about 6 feet deep), and has made packing cases to hold everything. All design and construction takes place in a warehouse in St. Petersburg, Florida. A visit to the warehouse is by appointment only. (His telephone number: (813) 527-4317.)

Bedore hopes that museums, art galleries, camera clubs, and libraries will exhibit his collection. He's written detailed descriptions and history header-panels to accompany the cameras. An unknowledgeable viewer quickly becomes aware of Zeiss's

important contributions to photography.

According to Bedore the traveling display embodies several purposes. In part, he believes it "will alert those who have the hard-to-find machines tucked away." In a covering letter (summer 1990), he emphasized, "The display was not designed to be a selling tool. The cameras are not for sale. This thing is strictly historic in nature." And last, he feels "very-very sure that this exhibit will have a positive effect on applications for membership."

Making his private collection public may soon be realized. In February 1991, the Fleetwood Museum in North Plainfield, New Jersey, sent their representative to see the Bedore Collection. An exhibition in New Jersey would surely attract many camera collectors as well as interested viewers.

Greg Bedore's enthusiasm for Zeiss Ikon and the Zeiss Historica Society is undisguised. He clearly has "Something Zeiss to say."

Much of the information above comes from Greg Bedore's packet to Maurice Zubatkin (summer 1990). With a covering letter, Bedore sent articles that appeared in two editions of the St. Petersburg Times: the Clearwater edition, Sunday, July 22, 1990; and a City Edition, Monday, July 23, 1990. He included photographs of his display and his Zeiss List XIV. Other articles on Bedore: THE COLLECTOR'S SOURCE, Vol. 1 No. 1, 1990; Photique Magazine CAMERA SHOPPER, No. 17: November 1990, and No. 18: January 1991. The editors visited Greg Bedore in February 1991.

PRESERVE OR RESTORE?

Nicholas Grossman, Rockville, Maryland

One manifestation of the interest in Zeiss is the preservation and collection of Zeiss products. The variety of items produced and marketed by the Zeiss companies has ranged from catalogs, instruction books through the full line of optical goods and accessories.

Most of us strive to obtain complete units in pristine condition. This goal is rather elusive. Many of the instruments have required regular maintenance that may have caused changes during their lives. Zeiss also encouraged the upgrading and modernization of certain product lines. Such options delighted the user, but can be perplexing and confusing to the present-day historian and collector.

The choices confronting the collector are: preserve equipment "as is," or restore it. This article reflects the views and the experience of the author. It avoids advocating a single dogmatic solution, and hopefully it will encourage the exchange of ideas.

I believe in restoration! Readers who are sceptical or have a fixed mind-set are urged to visit the Smithsonian Institution's Paul E. Garber Facility in Suitland, Maryland, a suburb of Washington, D.C. This facility was established to preserve, restore, maintain and display aircraft of the world. (Even if you are disinterested in historic aircraft, a visit will be a rewarding experience.) In the Facility's shop, craftsmen place the authentic or best-available scale drawings on the wall, a maintenance manual on the work table and painstakingly reassemble the aircraft. When it is necessary to resort to replacement, the craftsmen duplicate the missing part, using materials that faithfully replicate those on the original. (Nylon would never be substituted for canvas on a wing.) Upon completion of a task, the restored part is clearly marked and identified — both for historical fidelity, and to allow for retrofitting, should the original missing part be located in the future. These are the practices I have tried to emulate.

Literature

If pages are missing from my Zeiss catalogs, I attempt to obtain copies of the missing pages, insert them, then note this fact. If the original hard cover is so deteriorated that it causes more chagrin than pleasure (does this hit a familiar chord?) I utilize the skills of a professional bookbinder who can duplicate the style and quality of the original.

Microscopes and Telescopes

Recognizing the needs of users, Zeiss intentionally designed these products to be amenable to upgrading, thus anticipating both technical advances and adaptability to applications not originally required by the user. Newly designed microscope and telescope optics were usually fully compatible with earlier models. Factory upgrading was also available. Should you acquire such a "modernized" instrument, what is your choice? Do you leave it "as is" and have a hybrid instrument reflecting the last owner's preference? Or do you restore it? What do you do with a telescope

tube with chipped and peeled-off paint, exposing bare metal? Or with an old brass microscope whose rich original laquer finish has largely vanished through years of exposure to laboratory chemicals?

Photographic Equipment

This category is the most popular with collectors. At one time, factory service was available to repair broken cameras, especially shutters. Zeiss also encouraged factory upgrading of certain top-of-the-line camera models. Zeiss was also willing to modify the mounts of some interchangeable lenses to fill a need for cameras where demand was not sufficiently high to warrant a full line of lenses. Depending upon your perspective, such a modified lens can be a delight or a disappointment.

Many years ago I acquired my first Twin Lens Contaflex. The shutter straps were torn, the meter was dead, the front lens element was badly scratched. My professional camera repairman installed a new selenium sensor and restored the shutter to accurate working condition. A lens repair shop — no longer in business — repolished the front element. Was all this worth it? When I looked at the first set of slides I took with the restored camera, my answer was, "yes."

Binoculars

Binoculars require regular maintenance. The nature of such tasks depend upon the nature and frequency of use. The most common need is recollimation which requires internal adjustments. Externally, the leather covering probably will need some type of restoration. Lost or misplaced eyecups and objective covers can be replaced if the owner so chooses.

Military Optics

This category poses the greatest challenge to collectors. After all, they have gone through at least one war, and this fact is strikingly evident. The precision-fitted wooden carrying and storage cases, and the leather straps frequently look beyond redemption. Most of the accessories are gone. It requires patience, imagination — and courage — to undertake the restoration of such items.

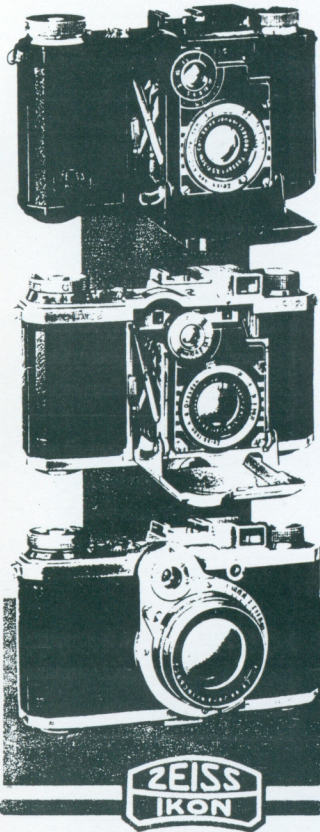
One Person's Opinion

I have found the results of my restoration efforts rewarding. Recognizing the truth of the adage, "jack of all trades, master of none," I depend upon professional craftsmen who are interested and willing to undertake one-of-a-kind, painstaking, and frequently challenging tasks. I have utilized the talents of camera and binocular repairmen, microscope shops, optical manufacturers, precision machine shops, sandblasting outfits, metal rolling and spinning mills, cabinetmakers, leather repair shops, and bookbinders. What have I gotten out of it? The satisfaction of admiring the functionally correct precision Zeiss products in my collection. You may wish to try it with your collectibles.

LICHTSTRAHLEN

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

Le moins cher des appareils de petit format



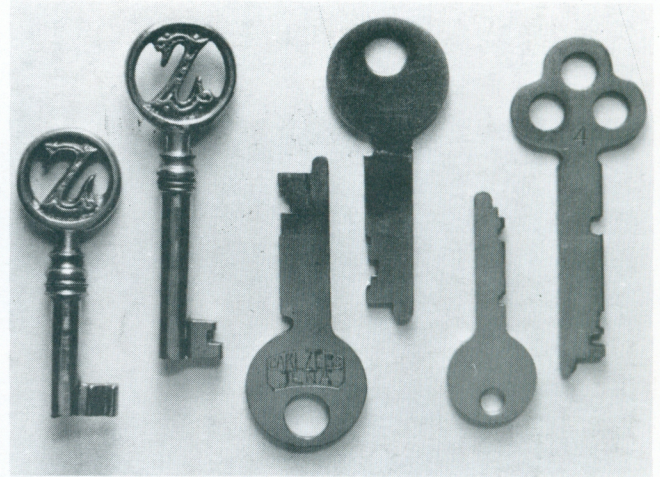
c'est le Super Nettel 24x36 mm. Sans atteindre à l'universalité du Contax et du Contaflex, il en possède sous une forme pliante les principaux perfectionnements: obturateur à rideau métallique, dos amovible, télémètre couplé, mais à base réduite proportionnellement à la focale, relativement courte des objectifs. Dans les Super Nettel I et II, l'objectif n'est pas interchangeable; ouverture 1 : 3,5 ou 1 : 2,8f. 5cm. Le Super Nettel III qui se présente sous forme rigide (non pliante) peut recevoir plusieurs objectifs interchangeables. Dans les modèles II et III les parties métalliques sont chromées.

Super Nettel

A Super Nettel III? That's how this 1937 brochure from France describes what we know as the Nettax (bottom). And a Nettax that never made it to market with the lens pictured on it: a 5 cm f2 Sonnar. (Nettax with this lens offered in a recent Cornwall auction is a conversion; Zeiss marked the serial number of the lens on the mount itself.)



This illustrated sign is a common sight in optometrists' store windows in Israel. It is about 19" long. A literal translation of the Hebrew: on the right side, "If your eyes are not the best in the world..." On the left side, "...then use the best lenses and eyeglass frames in the world." Beneath the word "Zeiss" in Latin letters is (in Hebrew), "Zeiss — because with your eyes you make no compromises."



A half-century of Zeiss microscope keys. Left to right: for 1912 large model research microscope, for 1900 microscope accessory case, for 1936 microscope case, for 1952 Carl Zeiss Jena microscope case, for 1955 Carl Zeiss Jena roll top microscope case, and for 1960 Zeiss Oberkochen Nr. 4 microscope case.

ZEISS HISTORICA SOCIETY OF AMERICA



会員募集案内

ZEISS HISTORICA SOCIETY OF AMERICAは1979年に Thomas R. Schreiner 氏によって創設された、営利を目的としない研究機関であり、ツァイス関連の各事業体の、歴史や関係者の業績、及びそれらの事業体の製品について研究し、また会員の間で情報を交換することを目的としています。現在の会員数は約170名で、アメリカ、カナダ、ヨーロッパ各国にその殆どが集中しています。1987年の会員名簿の中には、名譽会員として、コンタックス設計の責任者 Kupperlander 博士、戦後の復興期に広報部長として活躍した Wehran 氏などのツァイス関係者の名も見られ、一般会員としてコンタックス研究の世界的権威である Kuč 氏や、Schlegel 博士などの名も見えます。会報は原則として年2回、会員の研究報告を掲載して発行されます。研究対象は写真機器に関するものが多数を占めますが、顕微鏡、望遠鏡、プラネタリウム、特殊光学機器についての研究も掲載されます。ソフト関係の研究発表も活発で歴史的なものからコード番号システムの類までの範囲におよんでいます。また年に最低1回、アメリカ乃至カナダで総会が開催され、昨年は初めてヨーロッパ地域の会員がケルンで会合しました。協会的主旨に賛同される方は誰でも入会できます。入会申込の書式は、下記1)宛に、返信の為の住所氏名郵便番号をあらかじめ記入し60円切手を貼付した封筒を同封の上ご請求下さい。申込書に記入されたら、2)の会費を添えて3)の事務局宛に送付して下さい。手続きは完了します。なお送金の手段としては、必ず "drawn on xxx Bank, New York Branch" という条件で送金小切手を振り出す。最寄りの外為取扱銀行にご依頼下さい。これが行れない時は、厘々ご送金の額を上廻る取立手数料が協会側の負担になるからです。

(1) 〒157 東京都世田谷区北島43-13-15-507
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(2) 海外会員年会費 US\$ 25.
終身会員会費 US\$200.

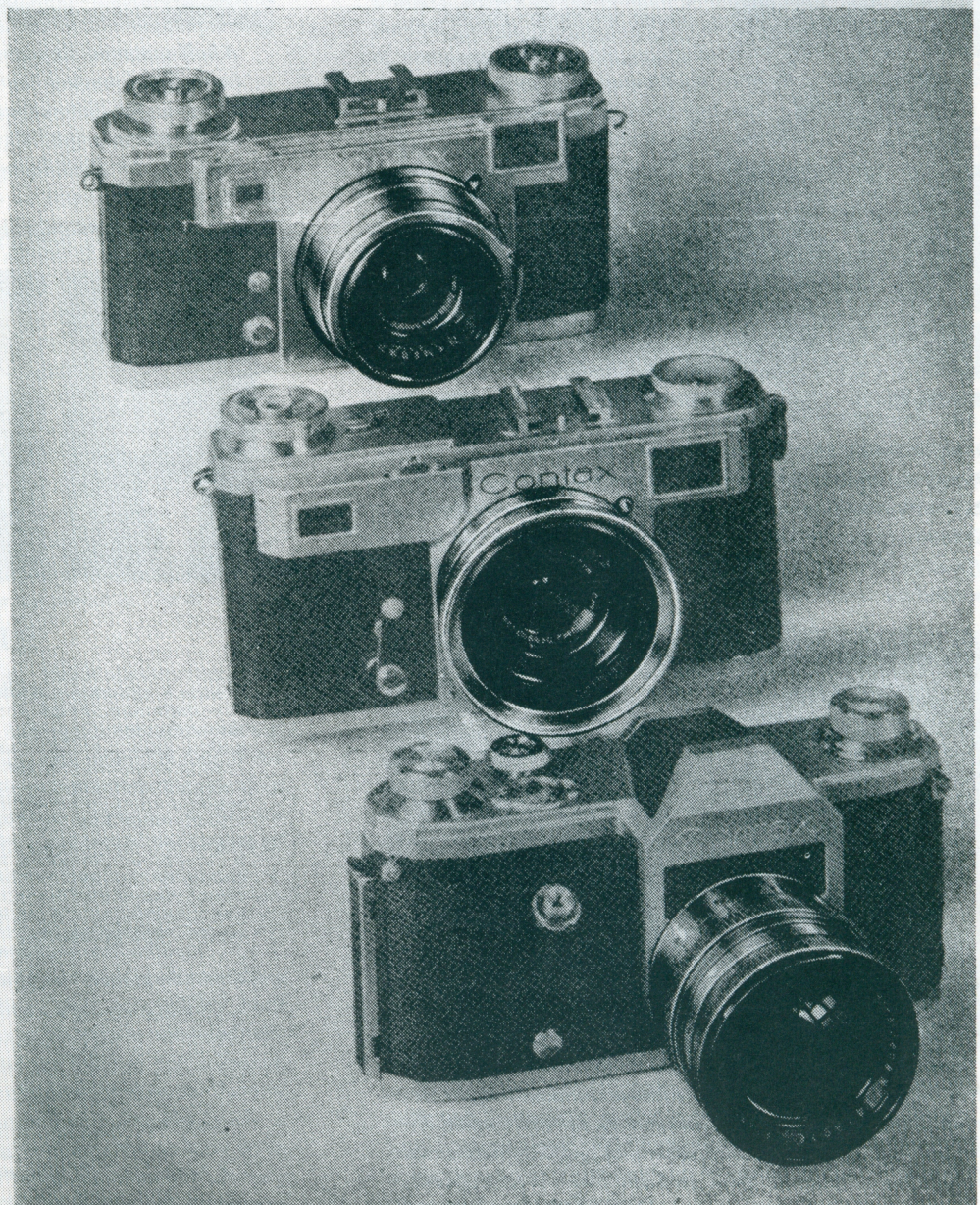
(3) Mr. Maurice E. Zubatkin
Secretary
ZEISS HISTORICA SOCIETY
P.O.Box 631
Clifton, N.J. 07012
U.S.A.

A Japanese collector's monthly magazine carried this ad for the Society. It was furnished by member Fritz Takeda.



MESSE-NEUHEIT 1950

Drei Weitwinkel-Objektive für Kleinbild- Kameras



1950 flyer from Carl Zeiss Jena introduces postwar Topogon f4, plus 35mm Biometar for Contax IIa and 35mm Flektogon for SLRs.