ZEISS HISTORICA

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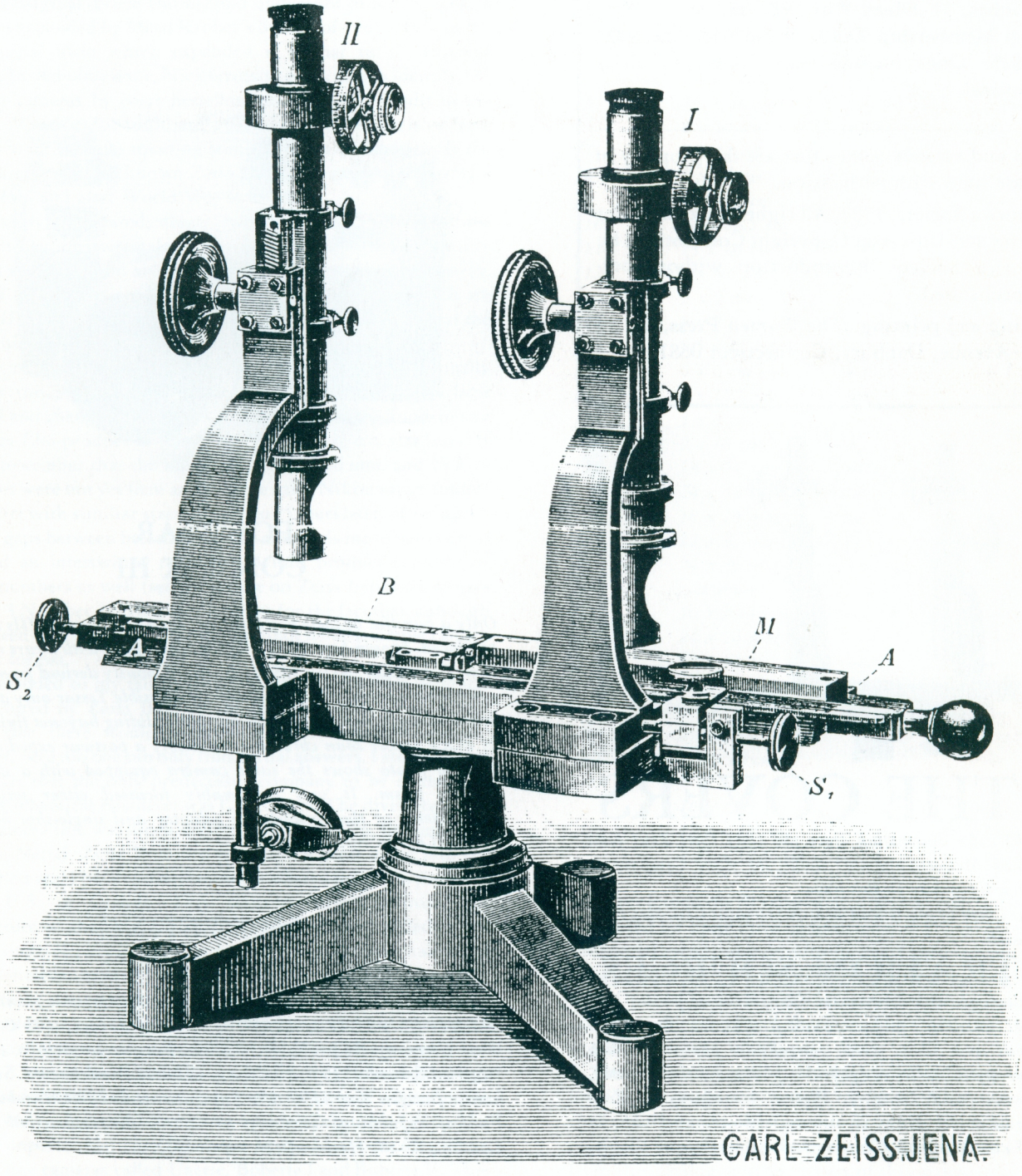

The Zeiss Historica Society of America is an educational, non-profit society dedicated to the study and exchange of information on the history of the Carl Zeiss optical company and affiliates, its people and products from 1846 to the present.

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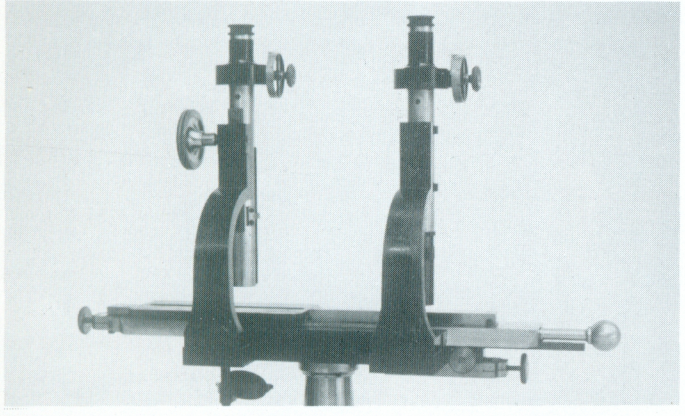


ON THE COVERS

FRONT COVER. An illustration from the 1893 Carl Zeiss Jena Catalog "Optische Messinstrumente" shows the Abbe Comparator discussed by Nick Grossman in this issue.

BACK COVER. Cover of pre-World War II Stereotar C catalog from Carl Zeiss, Brussels.

ILLUSTRATION SOURCES

Front cover, courtesy Nick Grossman. Ivory Contax photos and Contax photos on this page, courtesy Charles Barringer. Zeiss/Netherlands and 32cm. stereo rangefinder photos by Nick Grossman. Four-meter stereo rangefinder photos by the Curator, Auckland Museum and Institute. Photos accompanying Zeiss Departments article by Nick Grossman. Photos and ads in "Lichtstrahlen," courtesy Nick Grossman. Back cover from Charles Barringer.

POSTWAR CONTAX III

Only a handful of these postwar Carl Zeiss Jena Contax IIIs were produced. Shown here (top) is #28012, equipped with a rare rigid 5cm. f3.5 Tessar, #3102508. Lens was obviously derived from the collapsible version. (A conventional collapsible Tessar only a few hundred digits away from this one has a sliding bayonet finished in black rather than chrome — probably a postwar expedient.) Bottom photo shows the same camera equipped with a stereo closeup prism. It was presumably focussed either with a Contameter or the groundglass adaptor and single-shot back. (From Charles Barringer.)

JULY MEETING IN GERMANY?

A tentative and informal meeting of Zeiss Historica is planned for mid-July (July 11-12 or 18-19) in northern Europe, with Cologne, West Germany the probable location. For further details, contact Siegfried Schaub (529 Ruemlisberg, CH4803 Vordemwald, Switzerland), Juergen Kuc (156 Alte Landstrasse, D-2000 Hamburg 63, Federal Republic of Germany) or Charles Barringer, (205 Chews Landing Road, Haddonfield, NJ 08033).

BESTELLNUMMERN REVISITED

Larry Gubas, Edison, New Jersey

When the two early Zeiss Historica folios were published by Tom Schreiner in 1979 and 1980, one of the more interesting topics covered was totally new to me. It was that the Bestellnummer or order number of each Zeiss Ikon camera was related to the format of the camera's film size. [For example: the late model Super Ikonta B (532/16) where the 16 stood for the 6 x 6 centimeter format.]

Tom's original article enumerated only eight different sizes. It was soon expanded by Mead Kibbey's Spring of 1981 article in the new Journal form which expanded it further to 17 different formats. In that same issue, Nick Grossman was able to identify 128 different cameras by their bestellnummern. It is a credit to the Society, Maurice Zubatkin and Phil Laycock, that we now have two softcover volumes totalling some 93 pages which identify the order numbers for all known Zeiss Ikon cameras and accessories both before and after World War II.

I recently compared these two volumes and the three Hauptkatalog (mastercatalog) copies which I now have in the archives and have been able to pin down some more information. Some of this data is explicit but there are some items which are more difficult to define. All of the data appears in the table at the end of this article.

There is some indication that the number /22 was originally used for the 30 x 40 cm. format studio cameras but was later dropped and changed to the 18 x 24 mm. size. I don't know of any camera or film product in this or the /23 22 x 33 cm. size but it is well to remember that the now familiar 24 x 36 mm. and 24 x 24 mm. sizes were not yet firm and that the early Nikon range finders would flirt with similiar sizes more than 25 years later. My research into the gaps between bestellnummern also leads me to believe that they had an intertwined relationship into product research or project numbers as well (see my article on Zeiss Exposure Meters Volume 3 Number 2). This may account for the fact that, although I have been able to isolate formats, I cannot name a sample camera for each format.

I have added to my table the relationship to the film products manufactured by Zeiss Ikon in the preware years. (You would suspect that there would be some form of interrelationship.) However, here too one can only find partial answers. I attribute this to the fact that the only predecessor company to be in the film products (chemical business) was C.P. Goerz. The diversity in the Goerz camera line was much smaller than that in Ica, Ernemann or Contessa-Nettel. Zeiss Ikon did not make a great move into the film market and I believe that they never offered their film products in the U.S. or Canada. They seem to have continued the manufacture of the original six filmpack sizes and added to the rollfilm lines. However, the film products did not have a series of bestellnummern. Instead, they conformed to the European system of alphabetic designations.

Some of the film sizes shown in the catalogs cannot be coupled to any Zeiss cameras. They are 5 x 6.5 cm., 10 x 12.5 cm. and 7.25 x 12.5 cm. These were offered to support some discontinued cameras of the predecessor companies or popular formats of other camera manufacturers. Another film format which is mentioned is the 22 x 31 mm. unperforated cine film used by the carryover Ernemann product line cameras called Unette, Bobette I and Bobette II. This is quite close to the /23 size of 22 x 33 mm. and, indeed could have been used for these three cameras even if 552, 552/1 and 553 were the special catalog numbers for the film for these cameras. Later, the 35 mm. film for Contax and similiar cameras were located under the 541 non-film listing. (Other non-film products shared the 541 category which was exclusively used for Contax or 35 mm. related products.)

The 1929 catalog was the work of Dr. Kueppenbender who unified the combined catalogs of the predecessor companies and changed the catalog designation of 132 of these cameras into this particular bestellnummer scheme. A copy of the conversion table from this catalog appears as part of this article.

BESTELL NUMBERS, FILM FORMAT RELATIONSHIPS

Entry	*Film Size*	*Filmpack*	*Rollfilm*
none	*4.5 x 6 cm*	*yes*	*A8, AB6*
/1	*4.5 x 10.7 cm*	—	—
/2	*6 x 9 cm*	*yes*	*B II[B2], C, B2M*
/3	*6.5 x 9 cm*	—	—
/4	*6 x 13 cm*	—	—
/5	*8.3 x 10.8 cm*	—	—
/6	*8 x 14 cm*	*yes*	*G*
/7	*9 x 12 cm*	*yes*	—
/8	*9 x 14 cm*	—	—
/9	*10 x 15 cm*	*yes*	—
/10	*12 x 16.5 cm*	—	—
/11	*13 x 18 cm*	—	—
/12	*4 x 6.5 cm*	—	—
/13	*9 x 9 cm*	—	*H*
/14	*5 x 7.5 cm*	—	*N*
/15	*6.5 x 11 cm*	—	*D, DM*
/16	*6 x 6 cm*	—	*B I*
/17	*8 x 10.5 cm*	*yes*	*E, F[B III]*
/18	*3 x 4 cm*	—	—
/19	*9 x 18 cm*	—	—
/20	*18 x 24 cm*	—	—
/21	*24 x 30 cm*	—	—
/22	*18 x 24 mm*	—	—
/23	*22 x 33 mm*	—	—
/24	*24 x 36 mm*	—	—
/25	*unknown*		
/26	*10.5 x 14 cm*	—	—
/27	*24 x 24 mm*	—	—
/28	*12 x 12 cm*	—	—
/29	*18 x 18 cm*	—	—
/30	*6.5 x 9.5 cm*	—	—
/31	*unknown*		
/32	*7.5 x 10 cm*	—	—
	10 x 12.5 cm	—	*I, K*
	12.5 x 10 cm	—	*L*
	7.25 x 12.5 cm	—	*M*

ZEISS 4-METER STEREO RANGE FINDER

Nicholas Grossman, Rockville, Maryland

Range finders are used to measure the distance from an observation point to a target. Optical range finders are characterized as indirect measuring devices, to distinguish them from yard-sticks or measuring tapes. The military forces of the nations have made extensive use of range finders. The reader is referred to ZEISS HISTORICA JOURNAL Volume 6, Number 1, Spring 1984, and Volume 6, Number 2, Autumn 1984 for a brief historical sketch and illustrated examples of some range finders.

Healthy humans possess a stereoscopic range finder, the eyes, which in conjunction with the brain can estimate distances. The distance between the two pupils for an average adult is 6.5 cm. In optical terminology, this is the "base length" of binocular vision. Binocular vision of the unaided eyes extends from about 10 inches to 1000 feet.

Optical range finders use various design features to increase this base length. This feature is the underlying principle of optical range finders. This enhancement is called "stereoscopic magnification." It is expressed as the ratio of the instrument's distance between the eyes. (The total optical enhancement of a range finder is the product of the stereo and telescopic magnifications.)

The shortest Carl Zeiss stereo range finder this author is aware of has a 32 cm. (12 inch) base, an overall length of about 14 inches. Serial number is 1263. Thus the stereoscopic magnification is about 5x.

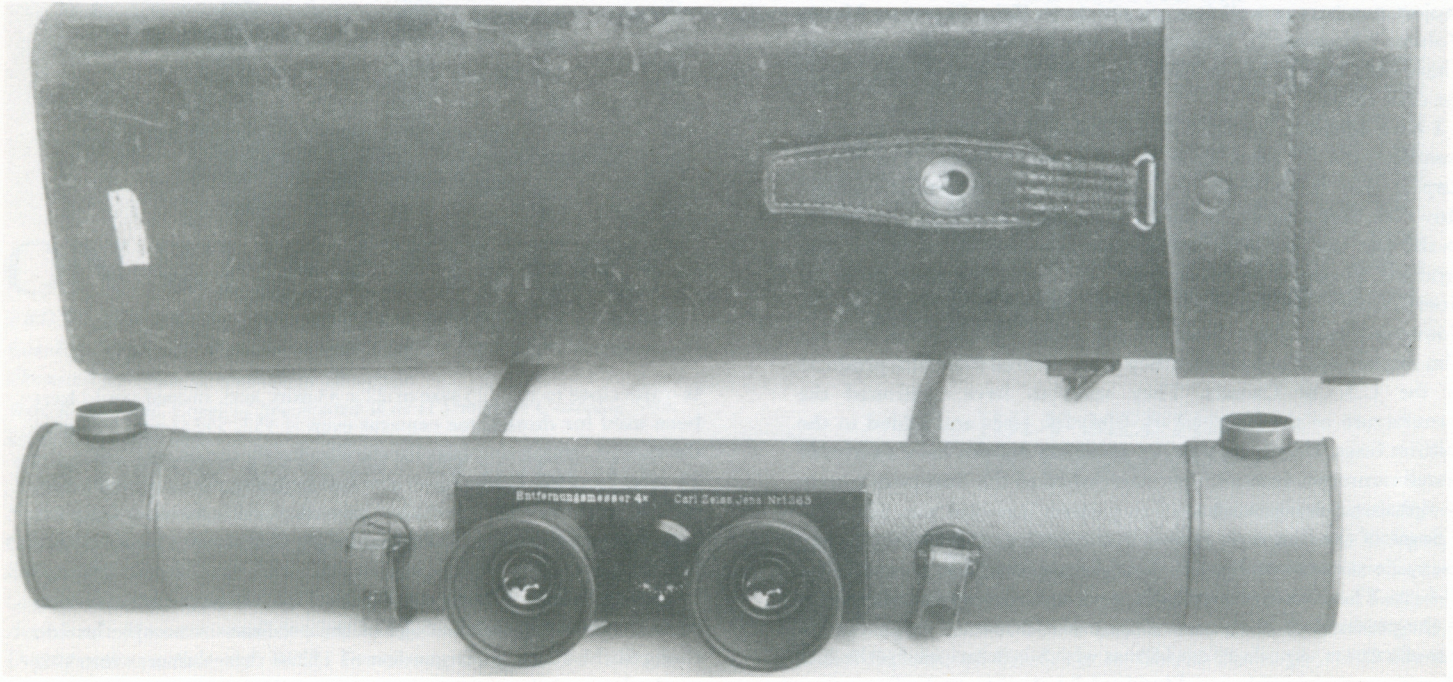
The military was interested in rugged, reliable, portable range finders suitable for one-man operation. The 70 cm. and 90 cm. base range finders became the most popular models. These models are also the most readily available to collectors. Such range finders provide a ten-to fourteen-fold stereoscopic magnification.

One of the most famous German artillery piece of World War II was the 88 mm. Anti-aircraft Gun (88 mm. Flak 36). The fire control equipment consisted of complex optical-electrical devices designed to provide accurate aiming information to the gun crew. Usually this consisted of a Stereoscopic Director 36 (Kommandoger at 36, abbreviated Kdo. Gr. 36), azimuth and elevation indicators, and the necessary wires and cables. The stereoscopic director electrically transmitted the data to the indicators and fuse setters.

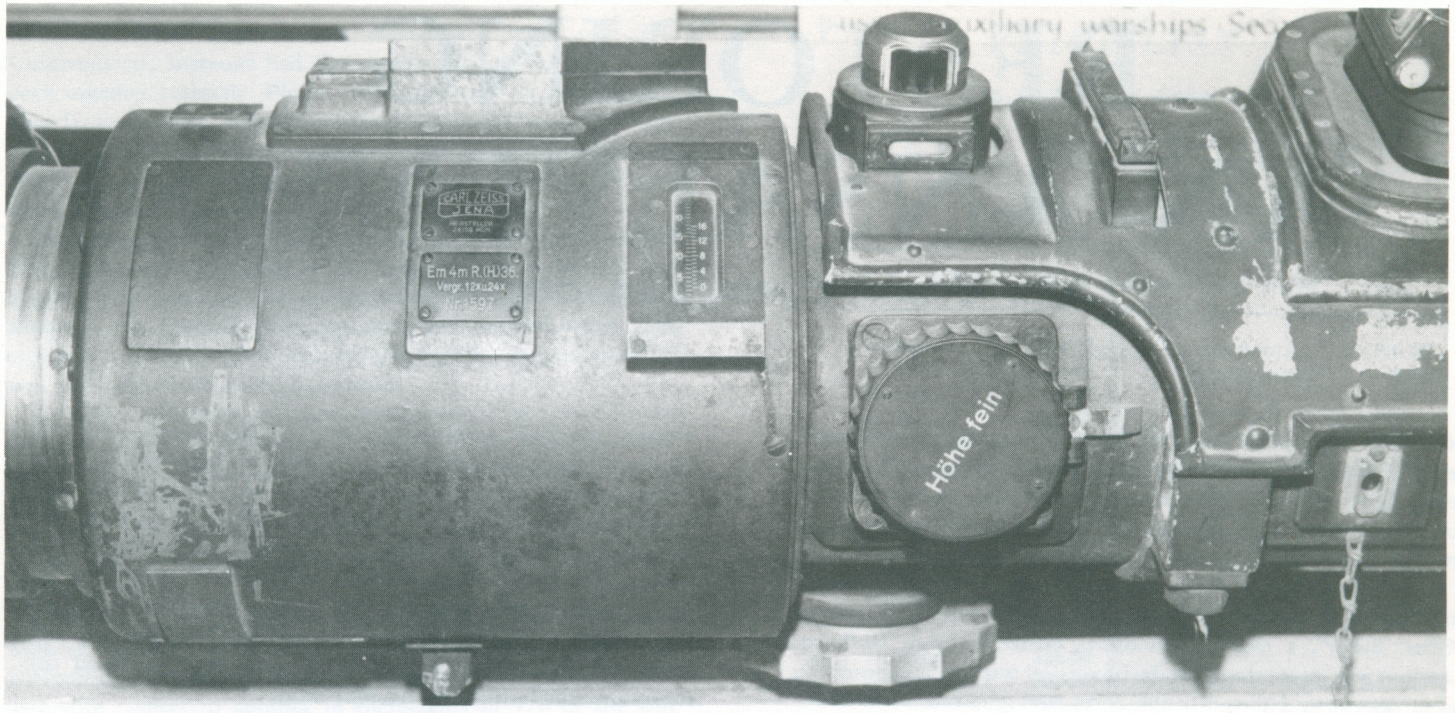
The dimensions of the Kdo. Gr. 36 were about the same as the gun itself. It required a trained crew of eleven soldiers to operate. The heart of this device was a 4-meter (13 feet) base stereoscopic range finder [Raumbildentfernungsmesser (Hohe)] abbreviated Em. 4m. R. (H). It was specifically designed for height measuring in the 500 to 50,000 meters (550 yard to 55,000 yard) range.

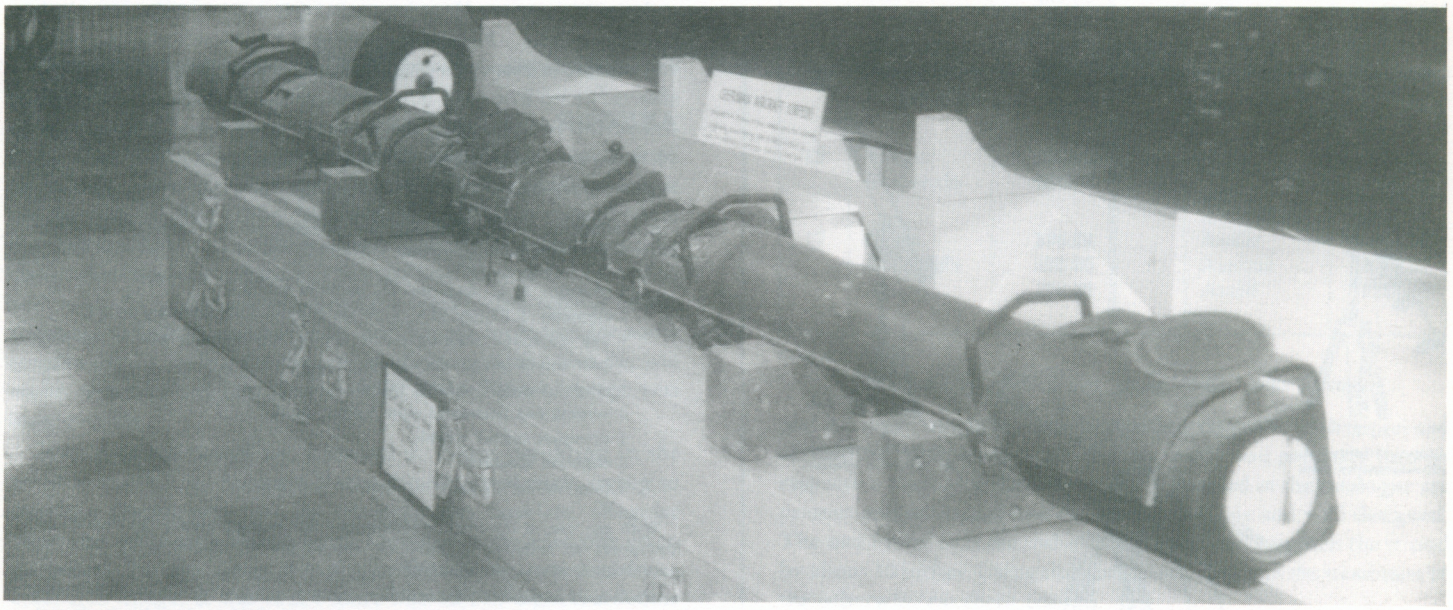
A complete Zeiss 4-meter stereo range finder is on display at the Auckland Museum and Institute in Auckland, New Zealand. The overall appearance of the range finder on display can be seen in the accompanying photos. (Note original carrying case on the floor and the close-up showing the name plate.) The information on the name plate reads: Carl Zeiss-Jena (logo) and below it Hersteller Zeiss Ikon (manufacturer Zeiss Ikon). EM 4m R (H) 36 Verg. 12x u. 24x (magnification 12x and 24x). Nr. 1597.

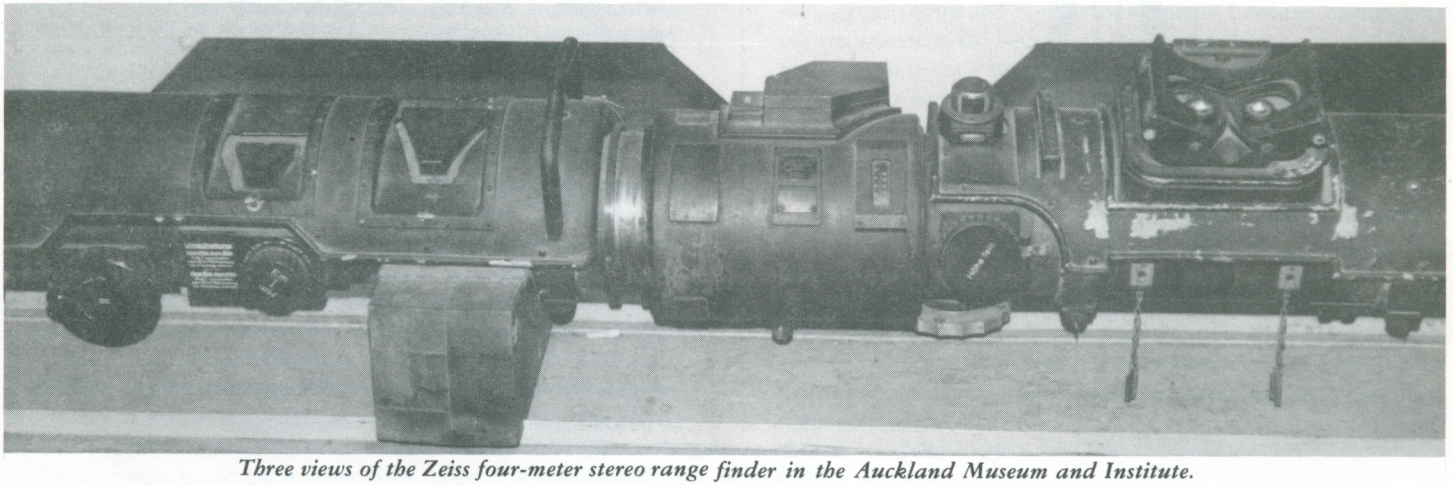
Because of their sheer size these range finders required auxiliary binoculars for guidance and coarse tracking. There were four 12x60 guiding binoculars attached to the range finder, located to the left and right of the stereoscopic observer's eyepieces. One type of binoculars was marked: Rm.-F. 12x60 fur EM 4m-Raumbild Fernrohr (Panoramic telescope for 4-meter range finder), the other Beob.-F. Beobachtung Fernrohr 12x60 fur Em 4m (observation telescope for 4-meter range finder). It is intended to cover these 12x60 binoculars bearing the Zeiss, Jena and "blc" logos in a future issue of the Journal.



#1263 Carl Zeiss stereo rangefinder with 32 cm. base. Overall length is appr. 14"; appr. magnification is 5X.







Three views of the Zeiss four-meter stereo range finder in the Auckland Museum and Institute.

RESTORING AN ANSALVENLO

John Gould, Faringdon, England

Some time ago I acquired an old Zeiss 60 mm. diameter telescope, serial number 9092, which I believed to be an "Asegur." This little telescope was designed as a normal view telescope, but it is suitable for astronomical use as well. (Its tiny aperture limits it to the moon, immediate planets and some of the more popular double stars.)

The telescope was an absolutely complete outfit in good order, in its box, virtually as it left Jena. The original supplier's lable of "Chas. Baker", a well-known optics dealer in High Holborn, London, was inside the lid of the box. In all respects it appeared to be an Asegur as depicted in the Zeiss catalogue No. 94 of 1934.

When erected and pointed at the moon (that most easy of celestial objects) the lunar image was dreadful. Flare and an incredible amount of spherical aberration indicated that something was very wrong with the telescope's object glass. Examination showed that the objective (No. 8663B of 850 mm. focal length) had been at some time dismantled and then refitted into its cell with the concave side leading. Further, the object glass was extremely thick. Carefully removing the lenses from their cell I was surprised to find that it was a triplet with three air-spaced elements. The first two were separated by a ground cylinder of glass plus six metal foil separators; the last by six foil separators.

The cardinal rule of telescoptics, I have been told, is never except

CARL ZEISS JENA

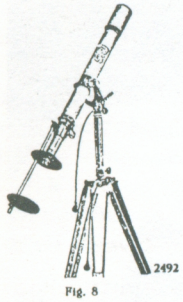


Fig. 8
Asegur on extension rod, with sun projection screen

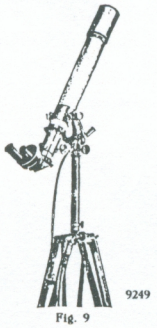


Fig. 9
Asegur with Zenith Prism and binocular eyepiece

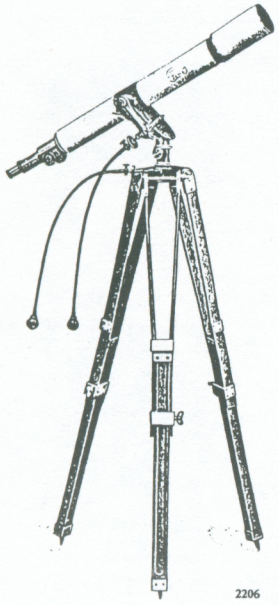


Fig. 10
Asegur without tripod extension rod

CARL ZEISS JENA

ASEGUR

2⅜ inch (60 mm.) Portable Telescope

Magnifications: 21×, 47×, 94×

A combination telescope, equally well adapted for terrestrial and for astronomical purposes. Included in each equipment are:

1 objective, 2⅜ in. diameter, 33½ in. focal length;
3 eyepieces: 1 Kellner 21×, 1 Huygens 47×, 1 Orthoscopic 94×;
1 sun glass; one erecting prism system; one eyepiece sliding sleeve;
1 tube mount with 1 eyepiece draw tube;
1 singly extensible wooden tripod;
1 vertical and horizontal slow motion gear;
1 extension rod for tripod;
1 objective sunshade;
1 case holding all parts of telescope and tripod.

With any one of the three eyepieces and the erecting prism, the instrument will prove an excellent telescope for use in the mountains, at the shore, at your country place, and elsewhere.

When used as an astronomical telescope, it is suitable for any kind of observation, the slow motions permitting it to be easily held in step with the diurnal movements of the heavenly bodies. These results by far exceed those attainable with the *Starmor*. The *Asegur* distinguishes double stars separated by an angular distance of 1.8 seconds of arc. Additional accessories, like the Binocular Eyepiece, the Zenith Prism, Sun Prism, and Orthoscopic Eyepieces for magnifications up to 168×, can be used with this telescope.

Prices on accompanying price sheet — **When ordering state Code word:**

With tripod and limited slow motion, wooden case for instrument and tripod (Fig. 10) . . . . . *Asegur*

Magnification	Objective Diameter in.	Objective Focal length in.	Exit pupil diameter mm.	Light transmitt. power	Field of View Angular degrees	Field of View Linear at 1000 yd. yards	Weight Telescope lb.	Weight Case lb.	Weight Stand lb.	Length of Telescope in.
21×	2⅜	33½	3.0	9	2.0	38	15.5	24.4	13.2	36¼
47×			1.3	1.7	0.9	19				
94×			0.6	0.4	0.5	10				

Page from Zeiss catalog shows the "Asegur", a lookalike of the "Ansalvenlo".

under the direst circumstances dismantle a triple objective. Unfortunately, someone had already done so and failed to get it back together correctly. Photo visual objectives or apochromats have far better color correction than doublets but have to be very precisely assembled. The lenses have to be assembled the right way round and in the correct order. And the orientation of each element to its fellows is most critical.

Some clues as to correct assembly and orientation were given me. Also, the proper position of the object glass in its cell was suggested by scratched lines and red wax crayon on two of the lens elements, the ground glass separator and the cell walls. The separator and one element also had six tiny foil spacers some 1.5 mm. in diameter on their peripheries.

A further indication as to orientation could be gained by the shadows of the original location of the foil spacers, which were still discernable on the glass surfaces. There was some ambiguity about these marks. The only satisfactory method of insuring a return to the object glasses' original optical performance was to try each permutation, replacing the objective in the telescope each time and trying it on a star.

By using the maximum magnification of X94, the three elements were gradually worked back to their original position by observation of Rigel, the bottom right star in Orion. Rotating one lens with respect to another in increments of 1/6 of the lens circumference (there are six spaces to a best position) and repeating with the rear element was time consuming. However, ultimately a satisfactory non-flared star image was obtained.

Some nights later, a very precise setting allowed the object glass to perform as it should. Defocussed equal distances on either side of focus with X94 (a fair power for a tiny telescope) the diffraction rings were similar, indicating that the object glass had a good figure and was of excellent optical quality. Rigel was fairly low on the horizon by then. The atmospheric conditions caused some chromatic effects so the full quality of the color correction of the object glass was not apparent. Then the English weather turned so bad, with the night sky obscured for weeks, that testing of the telescope ended. It was put away and almost forgotten for some months until a spring evening of great clarity with a five day old moon reminded me that another look at the Zeiss telescope was long overdue.

Setting the telescope up, I looked at Venus twinkling in the murk low down in the west. Venus did her usual trick, trying to convince the viewers that the telescope was hopeless. (Regular observers will know what I mean.) Swinging the telescope up to the bright five day moon, I was immediately impressed with the color-free image. It was much more like that of a good reflector than a refractor. Much more of the lunar detail was visible than I would have expected. Some of this was no doubt due to the firm mounting and easily-used slow motion. But undoubtedly the telescope's optical quality, in spite of its lack of blooming is capable of showing relatively fine detail.

One question remained to be answered. Until then, I had not come across a small Zeiss apochromatic refractor. A similar type of objective, much larger, complete with its ground-glass spacer is however illustrated in the 1923 edition of Konig's "Die Fernrohre und Entfernungmesser." The wonderful photo visual object glasses made by Cookes in York (England) many years ago are of course outstanding, but the smallest of these was 3½ inches (90 mm.) in diameter. The answer came in a copy of a Zeiss price list of 1932 from Bob Arial in South Carolina, refering to a 60 mm. 'Asalvenlo' 3-element objective version of the Asegur. Priced at $480, the Asalvenlo was extremely expensive compared to the Asegur at $395. Both prices were subject to a 10% increase for 1933!

The complete telescope is beautifully made. It assembles easily

PRICE LIST

for Catalogue Astro 80

ZEISS TELESCOPES

Effective April 1, 1932

Page	Code Word	Price	Page	Code Word	Price
11	Aseros	$ 140.00		Asaltanti	$ 724.00
	Aserrais	170.00		Asignamos	3.00
	Aserras	170.00			
	Aserosta	193.00	19	Asestaria	610.00
	Starumeno	12.00		Asamiento	720.00
	Aserraste	12.00		Asignanda	865.00
	Starudor	35.00		Asignanse	973.00
	Aserramos	16.50		Asestaron	610.00
	Aserrar	1.50		Asanarse	720.00
	Aserraria	2.50		Asignar	865.00
	Asignen	3.00		Asignaras	973.00
13	Starmor	225.00			
	Starmoras	202.00	21	Sold out. For new models	
	Starmorund	202.00	23	see Cat. Astro 506	
	Starmorbi	423.00			
	Starubi	400.00			
	Starumeno	12.00		Asinaba	585.00
	Starudoras	12.00			
	Starudor	35.00	25	Asenglar	1241.00
	Asignais	3.00		Asenglo	1262.00
15	Asegur	395.00	27	Asalumen	677.00
	Asalvenlo	480.00		Asacar	903.00
				Asadul	677.00
17	Asem	376.00		Asalir	903.00
	Asacanda	395.00		Asaltur	1298.00
	Asembi	705.00		Asalti	1298.00

Astro 93 U.S.A.

1932 catalog page shows "Ansalvenlo" price listing.

and is a joy to use. It packs up into its box complete with tripod and accessories, each component folding neatly and precisely into its respective place. All the accessories as detailed in the catalogue are present and all except one of these is sensible and well designed. The one I refer to is the rod extension piece to heighten the tripod by about 10 inches. Using this completely destroys the steadiness of the otherwise excellent tripod.

As the eyepieces are of the now universally-adopted Zeiss 24.5 mm. gauge, good and inexpensive modern ones can be added. In particular, one of the better new orthoscopic eyepieces of 12.5 mm. focal length gives a magnification of about X70. While this is an ideal power for a telescope of this aperture, a further 7 mm. for X120 is also desirable. A modern star diagonal (again of 24.5 mm. gauge) makes observation near the vertical easier, and makes the extension rod unnecessary.

The previous owner was very reticent about the optical performance of the telescope. He had only used it with the X21 eyepiece, as befitted its performance. No wonder that the screwdriver was referred to by Troughton, one of the great instrument makers of old, as one of the most dangerous weapons known to man. Many fine instruments have been ruined by meddlers so armed, as had this telescope. And many makers' reputations have been sullied by instruments so treated. I am of course delighted to have returned this splendid little telescope to use.

ZEISS IN THE NETHERLANDS

Nicholas Grossman, Rockville, Maryland

November 8, 1918. Near Compiegne, France, Marshall Foch received the German Armistice Commission in a railway coach. The conditions presented to the Germans were harsh: Germany was to evacuate all occupied territories (note: at this date German troops, far from being defeated, were in command of various strategic locations outside of Germany). The German homeland west of the Rhine would be occupied by Allied forces. Germany was to surrender 5000 locomotives, 150,000 freight cars, and 5000 trucks. In addition, 160 submarines and most of the German surface navy (though not defeated) were to be surrendered and turned over to the Allies.

November 11, 1918. At Compiegne forest at Rethondes two railway trains waited in the misty dawn. At 11 o'clock in the morning in a teakwood panelled Wagons-Lits dining car, Germany had no alternative but to sign the terms of the Armistice. The human losses to Germany amounted to 1,808,000 dead, 4,247,000 wounded, and 618,000 prisoners of war.

January 18, 1919. The Peace Conference convened in Paris with 70 representatives from 27 victorious nations. Germany was excluded from this Conference. Germany requested that the "Fourteen Points" postulated and widely publicized by President Wilson of the U.S. and upon which the Armistice document was signed should be incorporated into the Peace Treaty. This was ignored by the French.

June 21, 1919. The German navy was assembled at Britain's Scapa Flow to be turned over the the Allies. France was scheming to obtain most of the German ships gathered at Scapa Flow. Then while the English watched helplessly, the German crews scuttled the undefeated ships rather than surrender them.

June 28, 1919. In the Hall of Mirrors in the Palace of Versailles, outside of Paris, the German Peace Treaty was signed. Besides major territorial concessions by Germany, Article 231 made Germany solely responsible for causing the War. (Note: Archduke Franz Ferdinand of Austro-Hungary was visiting the Bosnian town of Sarajevo on June 28, 1914 when he was assassinated by Serbian extremists. Most impartial students of history consider this event and the subsequent reluctance by the Serbs to take corrective measures as the cause of the conflagration.)

Other provisions of the Treaty limited the German Army to no more than 100,000 men equipped only with small caliber guns. The Navy was limited to six warships but no submarines — and no German military aircraft. In addition to heavy financial compensation imposed upon Germany (the final bill was indeterminate — in other words a blank check) Germany was to hand over most of her merchant and fishing fleet. Germany was also directed to build 200,000 tons of ships for a five year period for the Allies, to provide large quantities of coal to various countries for the next ten years, and pay for the cost of the occupying armies. A further stipulation was that Germany had to sell all German property in the Allied countries.

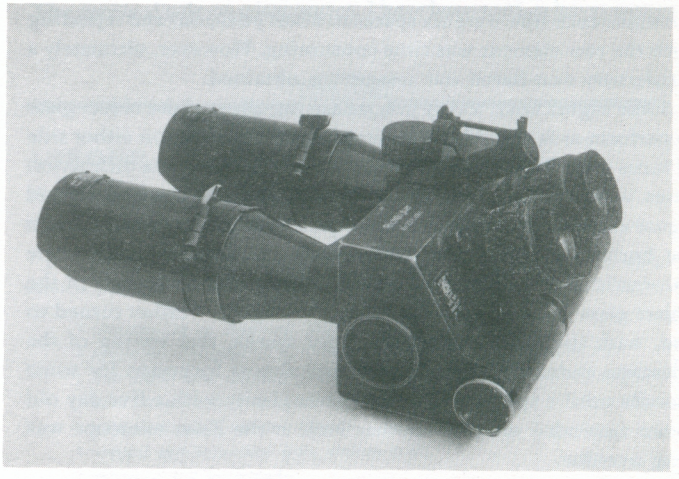
July 7, 1919. The German Government ratified the Treaty.

November 19, 1919. A move to ratify the Treaty in the U.S. Senate was defeated. The United States never ratified the Treaty.

Defiance

The terms of the Treaty made it nearly impossible for an industrialized nation to recover from the ravages of the War and re-establish a viable economy. The Zeiss Foundation and its affiliated companies were profoundly affected by the various restrictions forced upon German industry. Prior to the War numerous optical products, such as binoculars, were used both by the general public and by the military forces of various nations. Other optical goods, such as range finders, were specifically developed and marketed for the military.

Zeiss was looking for a way out of this crippling situation. At stake was not merely the volume of goods to be produced, which



7x50 naval binocular; a product of Nedinsco. Instrument is made of heavy bronze to avoid magnetic disturbances on shipboard. Serial number is 123318.

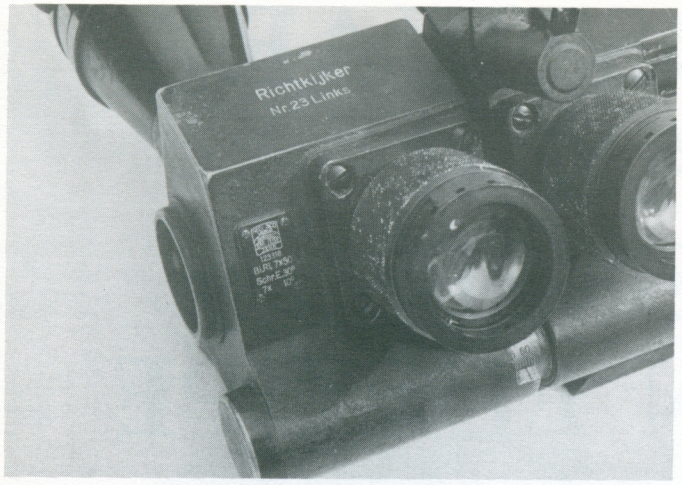
was made more pressing when Zeiss started to re-employ the returning war veterans, but also the need to keep up with the fundamental Zeiss tradition of staying in the forefront of new optical developments.

On January 12, 1921 the "N.V. Nederlandsche Instrumenten Compagnie" (The Dutch Instruments Company, Ltd.) was formed by a notarial act in Den Haag, The Netherlands. Initial capitalization was 200,000 Dutch guilders.

"Officially" this company came into existence because the Dutch East-Indies Company (Hollandsch Indische Compagnie) terminated operations in Amsterdam. In reality this was a wholly owned subsidiary of Carl Zeiss Foundation. The funds came from Zeiss, Jena through various banks in The Netherlands and Switzerland.

Rather than using its full, but lengthy name, the firm adopted its telegraphic routing symbol "Nedinsco". Production facilities were set up in the small town of Venlo, only a walking distance from the German border. Zeiss provided all the necessary machinery and equipment and shipped it to Venlo.

(The spotlight was briefly on Venlo in the early days of World War II. The British Intelligence Service tried to establish



Closeup of eyepiece. "Richtkijker Nr. 23 Links" gives the location of the binocular on the ship: position 23 on the left (port) side.

clandestine contacts within Germany. Two British MI-6 officers travelled to Venlo on November 9, 1939 to meet with "German underground" representatives at the Cafe Bacchus.

They ran into a trap set up by the Gestapo. While technically The Netherlands was then a neutral country, the Germans in three Mercedes Benzes came crashing through the border barriers, held the Dutch border guards at bay, then abducted the two MI-6 officers to Germany. For details refer to "Bodyguard of Lies" by Anthony Cave Brown, Bantam Books, 1975, chapter II-7 "The Venlo Incident".)

In order to effectively cover up the Zeiss-Nedinsco link, Zeiss set up a financial holding company in the Netherlands in January 1924, called "N.V. Finantieele Maatschappij Nederland".

This holding company then could handle financial and commercial transactions, especially in international trade, thus circumventing the restrictions of the Treaty. With Nedinsco in operation Zeiss could retain the profits rather than turn them over to the Allies as reparations as stipulated in the Treaty.

In a significant parallel development the German Admiralty encouraged the Dutch government to establish a "Submarine Development Bureau" in Den Haag. The German Admirality helped finance the operations and provide facilities and German personnel to the Bureau.

To cover up this German-Dutch connection the Bureau was officially named "Ingenieurkantoor voor Scheepsbuow" (Ship Design and Construction Bureau) in July 1922 and posed as an ordinary commercial shipbuilding firm. It was this firm that developed and built the "schnorkels" that played such a decisive role in the early part of World War II. Whether these actions were coordinated on a much higher level is subject to speculation. It is a fact that this Dutch firm built U-boats for various nations to the designs supplied by the German Navy. (For example this Dutch firm delivered three submarines to the Finnish Navy in 1930-31).

Thus a very effective mechanism was put in place in the Netherlands that permitted Zeiss to utilize Nedinsco and the German Navy's covert operation to supply various advanced military optical goods and get the benefit of experience through the Dutch connection.

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Payoff

March 16, 1935. The leader of Germany, Adolph Hitler, denounced the Treaty of Versailles as a "scrap of paper" and initiated the re-armament of Germany.

Zeiss no longer had to hide the Dutch connection. The Venlo plant came out with a new Zeiss logo: Nedinsco Venlo Systeem — Carl Zeiss Jena. It was fashioned around the classic Zeiss, Jena logo.

According to the best estimate of the present Directorate of the Netherlands Naval and Electronics Establishment the binoculars shown in this article were fabricated in 1938. Probably the instrument was one of the binocular gunsights and was mounted

Closeup of Nedinsco markings on binocular sunshade. 30° marking means that eyepieces are set at 30 degrees from the horizontal to provide more comfortable viewing. "Bi.Ri." indicates that this is a binocular gunsight.

on the weapon director of one of the two 12 cm. guns of the "Hr. Ms. Willem van der Zaan", a Dutch Naval minelayer. The left gunsight was used for elevation control and the right one for azimuth control.

The ship was put in service on August 21, 1939. In 1953 she was converted to a frigate. In 1961 she was converted into a maintenance ship at which time the guns and gunsights were removed. The optical instruments were sold by the Royal Netherlands Navy at that time. The ship was scrapped in 1970.

In addition to this Nedinsco instrument, the author has obtained photographs — alas no history — of identical Nedinsco binoculars, serial number 123373, marked "Richtkijker Nr. 5 Rechts" whose meaning should be obvious from the above text.

Starting in 1940, when the German expectation of "a quick victory" evaporated, most military hardware, including optical goods, ceased to carry a manufacturer's label, but utilized randomly selected, mostly three letter codes. Code letters "aaa" to "azz" were assigned in November 1940. Nedinsco was assigned the code "jux". The "jaa" through "jzz" batch was allocated in September 1941. After that date the Zeiss Nedinsco, Venlo trade emblem ceased to be used.

Epilogue

Should you visit Venlo, you can find the B.V. Nederlandse Instrumenten Compagnie (Nedinsco) doing business at Molensingel 17, 5912 AC Venlo, The Netherlands.

IVORY POSTWAR CONTAX II AND LENSES SURFACE IN EUROPE

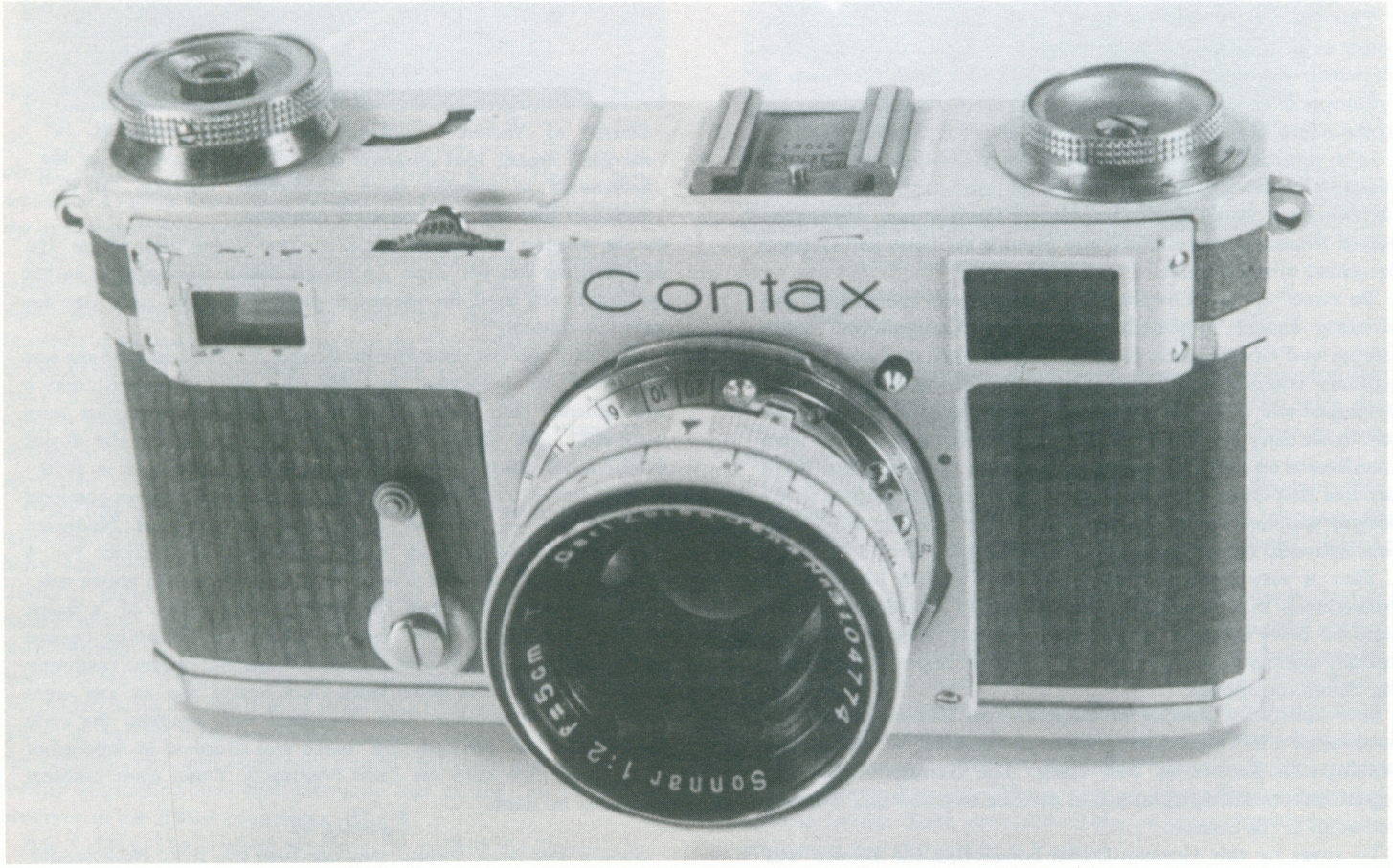
Charles M. Barringer, Jr., Haddonfield, N.J.

For many years black finish has implied the "professional look" in 35 mm equipment. But the way to be noticed now is to hang a white high-speed telephoto on your motor-driven Nicanolympax.

Once again, we can report that Zeiss blazed the trail and foretold the trend — forty years ago. Just after World War II in Jena, a few examples of the Contax II, along with a series of lenses, were produced in gleaming ivory and lizard-skin. Unfortunately, circumstances conspired to keep these prototypes from becoming production items, with the result that the few remaining pieces represent something close to the epitome of rarity.

Rumors have circulated in Europe for several years that these cameras existed in extremely limited numbers. All of them appeared within a very restricted range of serial numbers (between 27976 and 27981), marked with the Carl Zeiss Jena logo in the accessory shoe. Thanks to the persistent efforts of members Hans-Juergen Kuc and Siegfried Schaub, we now have photographic confirmation of two of these.

From discussions with a German collector who has been closely associated with Zeiss since the 1940's, Kuc reports that the ivory-finished equipment was made in an attempt to see whether the market would accept cameras in other than chrome and black. It seems that a red-finished camera was also produced as part of the same exercise. We have no feedback on the results of the market study.



Ivory-finished Contax #27981 with matching ivory f2 Sonnar #3104774. Another confirmed ivory Contax II is known to exist: #27979, with identical Sonnar #3104771.

Top photo: ivory Sonnars, 18cm. f2.8 and 30cm. f4, both in heads for Flektoskop mounting. Lower left: 13.5 cm. f4 Sonnar in ivory finish. Lower right: the 18cm. Sonnar shown in a 42mm. screw mount for SLR Contax.

TWO CARL ZEISS DEPARTMENTS

Nicholas Grossman, Rockville, Maryland

One of the great achievements of Carl Zeiss under Ernst Abbe's leadership was to design and fabricate optical instruments based on scientific and engineering principals rather than by the art of trial and error. This breakthrough was then closely followed by two supporting activities.

The first target was to establish a reliable source for high-quality optical glasses with predetermined properties. This goal was achieved through the Zeiss and Otto Schott cooperative effort that culminated in a formal affiliation in 1882.

To incorporate these scientific and technical achievements into economically competitive products the then traditional art of manual fabrication and assembly practices had to be replaced by mass production techniques utilizing interchangeable components. This second goal was reached when Zeiss formed a licensing and exchange agreement with the Bausch & Lomb Company of Rochester, NY in 1891. This agreement provided Zeiss with up-to-date American mass production know-how.

The Zeiss B&L exchange agreement lacked the glamour of a scientific feat and is usually relegated to a historical footnote. The potential consequences were clearly recognized, however, by Abbe. New microscope designs with interchangeable parts reflected this shift in fabrication methods. Similarly, new equatorial telescope mounts were marketed incorporating advanced engineering features. These were predictable and positive consequences.

But Abbe also perceived another and potentially adverse consequence from this shift: the loss of a talented, trained and highly skilled cadre of individuals whose services would no longer be required under the new production methods.

OPTICAL MEASURING INSTRUMENT DEPARTMENT

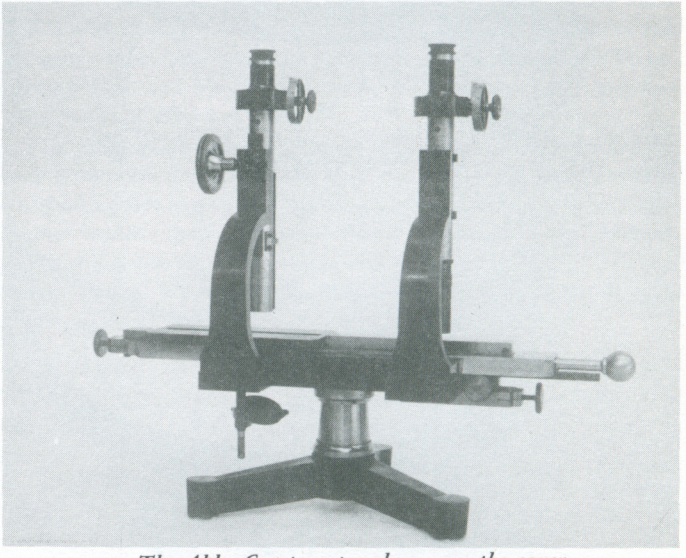
Abbe's solution was ingenious and elegant. He established the Optical Measuring Instrument Department in 1890. The designation "Mess" was given to this new Department based on the German word "messen" — to measure or gauge. Dr. Carl Pulfrich was made manager in 1893, then Dr. Fritz Loewe took over in 1927.

The reader should be careful not to confuse the Optical Measuring Instrument Department with the Precision Industrial Measuring Instrument Department that Zeiss established after World War I. (See below.) Again the German designations are helpful. The Industrial Measuring Instrument Department was designed "Fe" derived from the German "Feinmessgerate" — fine-limit or precision measuring instruments.

The Measuring Instrument ("Mess") department specialized in the design, fabrication and calibration of precision-built measuring devices utilized both within the Zeiss establishment and by other laboratories. (The early instruments were designed by Abbe, such as the refractometer in 1869, and were followed by the spectrometer, spherometer, focimeter, comparator and different interference devices.)

These measuring instruments were usually produced in small quantities. Thus Abbe managed to forge ahead with new manufacturing technologies while successfully redirecting the available resources to capture new marketing opportunities.

Catalog Mess. 165 "Zeiss Dipping Refractometer", 4th edition 1907, listed the range of products then available as follows: refractometers, spectrometers, spectroscopes, longimetrical apparatus, reading telescopes, dip of the horizon measurers, interpupillary distance gauges and exophtalmometers, stereoscopic apparatus, and miscellaneous apparatus for demonstration purposes.



The Abbe Comparator shown on the cover.

Under the category of "Longimetrical Apparatus" the following instruments were listed in the above-mentioned 1907 catalog: comparator, micrometer microscope, thickness micrometers, blink microscopes, and scales and rules on metal and glass. The Abbe Comparator shown here carries serial number 995. It's interesting to compare it with the one in the illustration from the 1893 Carl Zeiss, Jena catalog "Optische Messinstrumente". Judging from certain refinements illustrated in the catalog, but lacking in Nr. 995, it was probably fabricated in the 1891-92 period. (In addition to the serial number, the instrument's scale is stamped 'PTR II 173' the meaning of which is unclear.)

The comparator was designed to accurately determine the linear dimensions of flat objects, such as reticles, star parallexes recorded on photographic plates. The principle of operation is based on comparing the dimensions of the object to be measured with known distances of a precisely calibrated scale.

The major functional components of the comparator consist of a stand with two parallel mounted micrometer-microscopes and two adjustable tables. One table carries the scale while the second table accommodates objects to be measured up to 100 mm. long. It can be

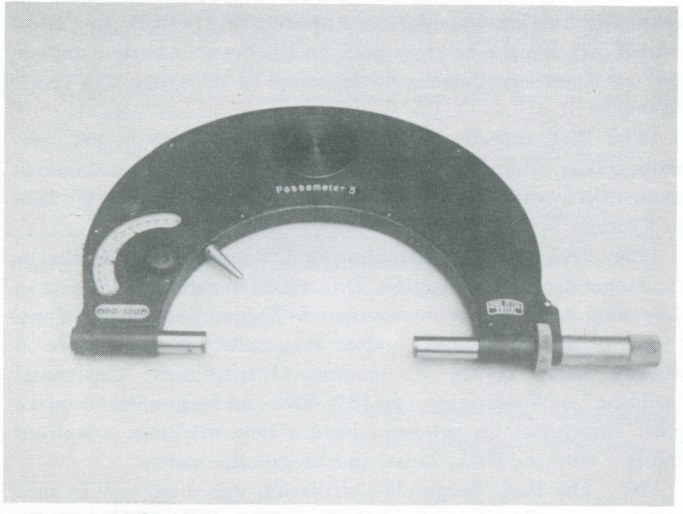
read to 0.001 mm. and estimated to 0.0001 mm. (What does a thousandth of a millimeter mean? To measure one thousandth of a millimeter in a length of 100 milimeters requires the same accuracy as measuring a person weighing 175 pounds and then measuring the same person after he'd placed two letters each weighing one ounce in his pocket and discovering that he now weighed 175 lbs. and 2 ounces!)

The 1893 "Optische Messinstrumente" catalog refers to this instrument as a "small comparator"; the price is given as 400 marks. Zeiss catalog "Astronomische Instrumente" Astro 30, dated December 1916 shows this instrument on page 95, item 193 as "comparator after Abbe." (In the trade it became known as the "Abbe Comparator".) Astro price list 36, dated January, 1917 gives the price at 1,000 marks. The Zeiss, Jena Catalog "Opto-Physical Measuring Instruments" Nr. 32-035, dated 1962 carries this instrument with various improvements designated as "Abbe Comparator Model B" — no price listed.

PRECISION MEASURING INSTRUMENT DEPARTMENT

The history of the Zeiss Precision Instrument Measuring Department is perhaps lesser known and has been overshadowed by the fame of other departments.

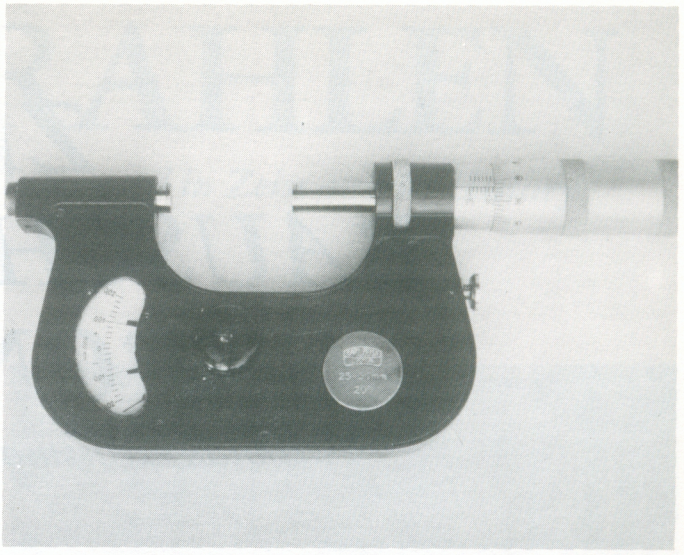
First the name of the department needs to be clarified. In German it was designated as "Technische Feinmessgerate" and the code designation was "Fe." In the English translation this became "Technological Fine Limit Instruments," or "Industrial Measuring Instruments," or "Metrological Instruments." A further complication was that, as related above, an earlier Zeiss department bore the name "Optical Measuring Instruments" and was responsible for the design and production of instruments for the chemical, physical, and medical investigations, designated by the code "Mess".



The Passameter, 90mm. to 120mm. range.

Military conflagrations have profound effects on almost every aspect of our lives — whether we like it or not. The history of Zeiss is no exception. In some circles, for example, the classical Zeiss porro prism binocular design is still referred to as "Crimean Glasses", because of their extensive use by the military in the Crimean War shortly after Zeiss marketed these binoculars.

At the conclusion of World War I the Treaty of Versailles, signed on July 18, 1919, put onerous burdens on Germany. One of the provisions (Article 168) prohibited Germany from manufacturing certain goods under the assumption that such restrictions would assure peace forever.



The Indicating Micrometer, 25mm. to 50mm. range.

It is far beyond the scope of this article to examine and debate the consequences of the Treaty of Versailles. But it was within this framework of constraints that Zeiss management had to find new product lines in the chaotic post-1918 period not only to gainfully employ the work force on hand, but to find useful employment for the returning veterans who prior to their military service had been Zeiss employees. It was in this immediate post-World War I period that Zeiss established the "Precision Measuring Instrument Department." (Other lesser-known Zeiss activities that either originated or were greatly expanded in this period were the manufacture of automobile headlights, turn signal indicators, operating-room lighting equipment, and locks).

The products of this Department found their way to many of the tool-making and precision measuring sections of the industrial nations of the world. The 1934 Catalog Fe 200 is a 128 page hard-cover booklet. Typical instruments listed: micrometers, standard gauge blocks, indicating and measuring gauges, protractors, levels, dividing heads, tool makers' microscopes (these were never marketed by the Microscope Department — code "Mikro").

The indicating micrometer, 25-50 mm range, directly reading to 0.002 mm. (approximately 0.0001 inch), shown here, is described in detail in Zeiss folder Fe 102. The passameter illustrated is for the 90-120 mm. range. This instrument was a standard measuring tool in mass production departments and was used as a "go/no go" gauge. Zeiss folder Fe 103 provided the specifics.

At the end of World War II the Zeiss works in Jena continued with the manufacturing and marketing of this product line. The departmental identification was changed: the letter code "Fe" was dropped and "24" was assigned to this product line. (The 1962 hard-cover catalog "Metrological Instruments" is identified as No. 24-030f-2, and consists of 191 pages).

Zeiss Oberkochen did not produce any of the small standard shop measuring instruments. (A few specialized instruments, such as light section microscopes, were produced in the departments designated as 60 and 64.)

Instead, Oberkochen anticipated the era of large-scale computerization and started a whole new product line of measuring instruments — most of them large and massive central installations.

To the best knowledge of this author, Jena no longer markets traditional shop measuring instruments either, but has switched to large computerized and sophisticated units.

The prewar Zeiss shop measuring instruments are collectors' items, of course, to those who know and recognize these specialized products.

ZEISS-
BAUSCH & LOMB
CHRONOLOGY

Nicholas Grossman, Rockville, Maryland

Jacob J. Bausch was born in 1830 in Gross Sussen, Wuerttemberg, Germany. The economic and political situation that prevailed in Europe convinced him to emigrate to the United States in 1849. He settled in Rochester, N.Y. where he worked as a wood turner. Henry Lomb was born in Hesse-Kassel, Germany in 1928. He also came to the U.S. in 1849 and settled in Rochester. By trade Lomb was a cabinet maker.

The two men became business associates and founded various enterprises without much success. Then around 1861 they had an idea: make eyeglass frames out of a hard rubber type of material. This proved to be a commercial success. At about the same time Bausch invented and patented a power-driven spectacle lens grinding machine. In 1866 the partnership incorporated under the "Vulcanite Optical Instrument Company" name.

J. J. Bausch's first child, Edward, was born in 1854. After graduating from Cornell University in 1874 Edward joined the Vulcanite Company. It was in this same year that the company produced its first microscope based on its own design. They also changed the name of the firm to Bausch & Lomb Optical Company (B&L).

In response to the ever-growing demand for medium priced microscopes and other less expensive, but reliable optical instruments, Bausch & Lomb concentrated on mass production techniques to offer products at competitive prices. This goal was steadily pursued and numerous patents were aquired to enhance the value of the products.

By the end of the ninenteenth century Bausch & Lomb Optical Company had become the leading optical manufacturing firm in the United States.

During the same time period, Carl Zeiss, Ernst Abbe and Otto Schott in Jena established their scientific and technical foundation for the design and fabrication of optical instruments. Their new approach replaced the art of trial and error. Image formation theory was postulated and put into practice. Optical glasses were produced that met design specifications.

The desire to combine production know-how with theoretical advances motivated Zeiss and B&L to form a cooperative exchange agreement for the benefit of both parties. A brief chronology of this association with major milestones follows.

1891. Carl Zeiss Works and Bausch & Lomb form an association. Zeiss licensed B&L to fabricate the patented Zeiss lenses. In exchange, B&L provided Zeiss with manufacturing techniques and equipment. (It is interesting for the modern reader to put this period in perspective. This was the year when B&L installed electric lights in their shops — the electricity probably came from the Niagara Falls hydroelectric generating facility.)

1893. Edward Bausch travelled to Jena to make arrangements to enable B&L to fabricate the Zeiss product line in Rochester. In all probability Bausch brought back to Rochester a fairly complete line of Zeiss instruments, in addition to drawings and specifications.

1894. B&L started marketing Zeiss-designed binoculars, telescopes, filar micrometer eyepieces and other new optical instruments. B&L won prizes at the World Columbian Exposition held in Chicago in that year.

1985. B&L had been providing optical components to George N. Saegmuller, a Washington, D.C. establishment specializing in surveying and ordance instruments to Saegmuller specifications. (Some of these beautifully crafted Saegmuller instruments are on display today at the Smithsonian Institution's "Centennial Building" in Washington.) In 1895 B&L and Saegmuller formed a joint enterprise. Its products bore a new marking: a stylized triangle with the B&L, Zeiss, and Saegmuller names.

1907. The B&L/Saegmuller affiliation was dissolved. In subsequent years, B&L fabricated numerous instruments developed by Zeiss, among them the Greenough type stereo microscope, the Abbe comparison microscope, and a wide range of opthalmic devices.

1915. The Zeiss/B&L agreement was suspended.

1921. In April the Zeiss/B&L link was reestablished.

1933. In February B&L paid Zeiss a substantial sum of money to settle a claim by Zeiss. Zeiss requested the payment to compensate it for the 1915-1921 period when B&L supplied the U.S. government with military and other optical devices incorporating Zeiss patents and other Zeiss trade information. This payment was particularly significant because Germany was eagerly seeking foreign currency, especially U.S. dollars.

1941. The outbreak of hostilities terminated the Zeiss/B&L cooperative agreements. This ended an association that spanned a fifty year period, except for the gap caused by the First World War.

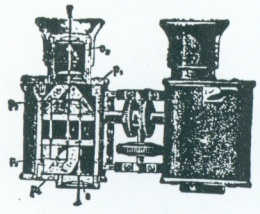
LICHTSTRAHLEN

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

ZEISS SOCIETY PROFILED

A detailed and generous profile of Zeiss Historica appeared in "C VII", a publication of Company Seven, Astro-Optics Division, Box 2587, Montpelier, MD20708-0587. (301) 953-2000. Company Seven is a retail, mailorder dealer in telescopes and other astronomical gear.

MODERN FIELD GLASSES.



To the naval and military officer, the sportsman and the tourist, a Binocular is most necessary. The war in South Africa and the operations in China have awakened an interest in field-glasses which is so widespread that our readers will certainly be interested in the following description of the new prismatic type of glass which is so rapidly supplanting glasses of the older form of construction, in consequence of a combination of those advantages which go to form a perfect field-glass—highest power, finest definition, largest field, smallest size and lightest weight.

The most perfect models of prismatic field-glasses, which represent the highest standard of modern optical perfection, are the famous Goerz Trieder Binoculars, which have done such excellent service in South Africa, and with which a great part of the German Army, the recognised model Army of Europe, is equipped. The ray of light entering the glass is bent by reflecting prisms, as our readers can see in the accompanying figure, which shows the inner construction of this ingenious instrument. An enormous advantage the Goerz glasses have over all other existing prismatic field-glasses is the ease with which they are adjusted to the eyes. The Goerz Trieder Binoculars can be focussed with one hand only, which is far more convenient than having to use both, as is necessary with almost all other prismatic glasses. On horseback this drawback to other glasses renders their use most difficult, if not impossible.

Advertisement from "The Art Annual" (British) for 1900.

WHEN IS A CONTAX NOT A CONTAX?

As he was walking on one of the commercial streets in Melbourne, Australia, the sign above (posted over a store entrance) caught Nick Grossman's eye. Peering into the window, he realized that the store specialized in contact lenses, not in photographic equipment. The sign makes a nice souvenir for Zeiss enthusiasts. Does anyone else know of instances when a Contax is not a camera?

THEN AND NOW

Ad at the right is from the magazine "Nato's Sixteen Nations", April/May, 1984. Ad at the left appeared in the German Magazine "Die Wehrmacht" in December, 1938.

ZEISS

OPTISCHES GERÄT

aller Art für militärische Zwecke

Kommandogeräte
für Land- und Bordzwecke

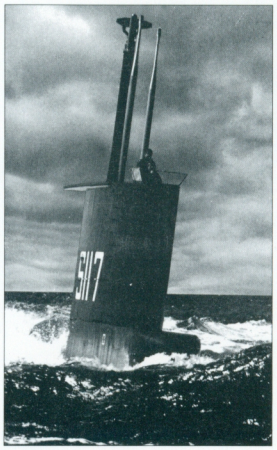
Entfernungsmesser
für Heer und Marine

Zielfernrohre
für Geschütze und Maschinenwaffen

Periskope
für Unterseeboote

CARL ZEISS JENA

Submarine periscopes from Zeiss:
top opto-electronic products meeting international quality requirements.



Submarine periscopes from Zeiss are distinguished by

- excellent optical quality
- special types of glass
- T* multi-layer coating
- up-to-date electronics
- high reliability
- modular design
- easy maintenance

Options:
- Two-axis line-of-sight stabilization
- Thermal imaging
- TV camera
- Antenna systems
- Laser rangefinder
- Camera
- Remote control
- Digital interface
- Fairing

Wide-based experience in general technology makes Zeiss your guarantee for
- high scientific standards
- quality and logistic supply

Our world-wide sales and service organization makes it easy to contact us and helps to get your problems solved fast.

ZEISS West Germany

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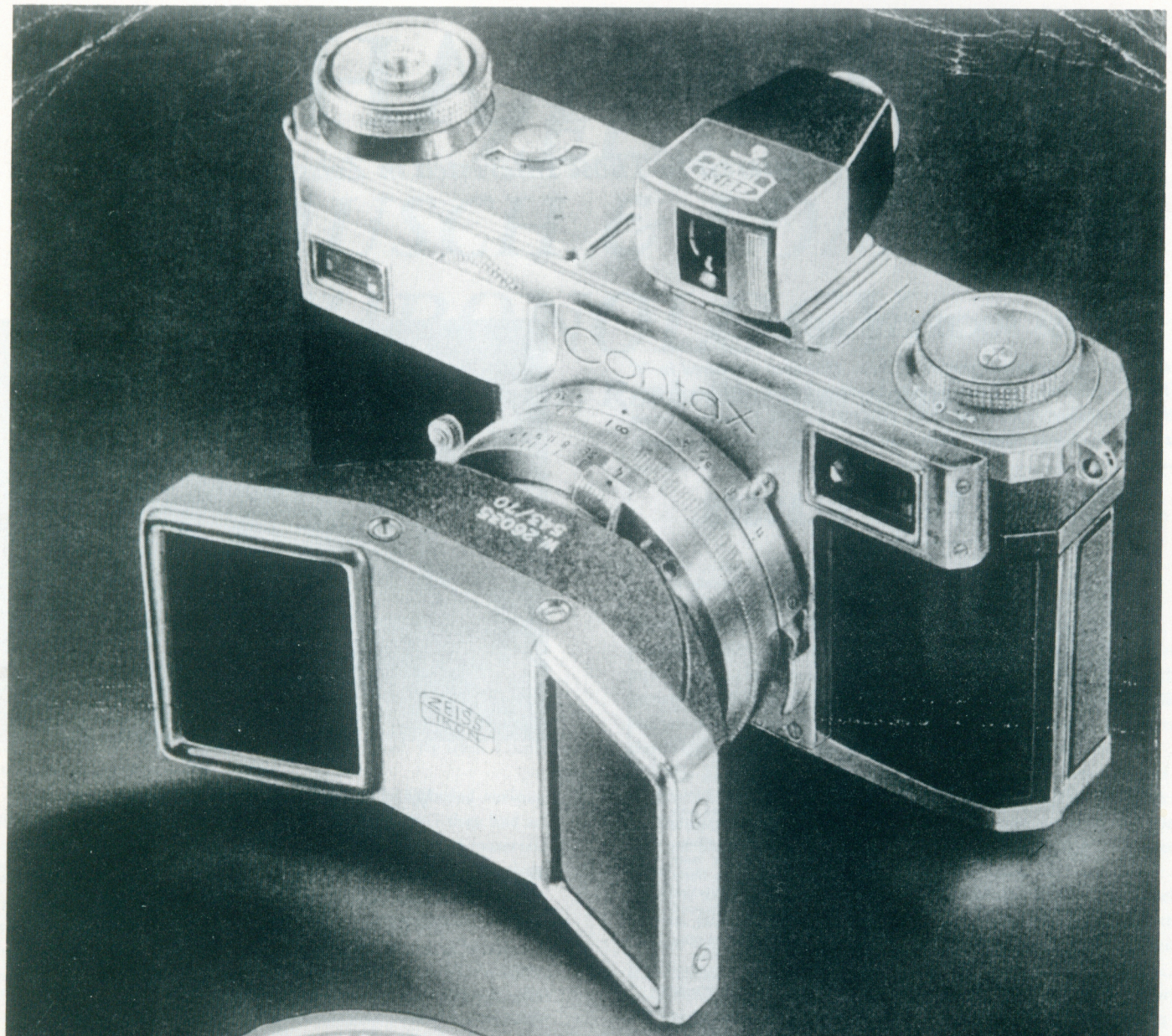
Carl Zeiss
Abt. Sonderoptik
D-7082 Oberkochen



ZEISS IKON

Stéréophotographie

Contax

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