


ZEISS HISTORICA

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Contessa  - Nettel



Contessa-Camera

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

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Front cover: A colored illustration from a 1912 catalog for Contessa, seen against a background of three Contessa trademarks selected from those shown by Larry Gubas on page 24. We thank ZHS member Peter Hennig, of Bromma, Sweden, for the catalog illustration.



Back cover: An advertising card for the new Contax II. The original measures about one meter by 70 cm (2 x 3 ft.) and is printed on heavy cardboard for a dealer's window display. Charles Barringer, who sent us this copy, adds some notes on the text and illustration on the inside back cover.



Corrections to the Fall 2007 issue are on the inside back cover.

President's Letter

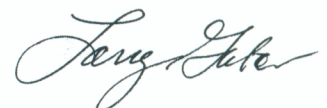
It has been a difficult few months for me with a trip back to New York for major surgery that turned into two major surgeries and a later radiological surgery to address complications. Recovery and a return home has been a very slow process, and I will not be able to do much physical activity for a few months before I have to return for a third surgery later this summer. As a result, I have not been able to directly address the dividend that we promised for 2007: It is to be a DVD of the original 1920s movies made by Professor Emanuel Goldberg to publicize his invention of the groundbreaking Kinamo movie camera. We are trying to get the best-quality reproduction as possible, and in formats for both foreign and US DVD players. In addition, it had been my assignment from the last annual meeting to write a comprehensive essay on all of the lines of business of the Zeiss-related firms in the collectable period of 1846–1972. This was to be the dividend for this issue. I hope that you do understand my delay in getting this accomplished because of the severity of my illnesses. I do promise to act on these matters in time for a combined mailing with the second issue of the Journal for 2008.

This issue is blessed with some new information that should please you all. Alex Schulz, whom I was fortunate to meet and travel with on a trip to Germany a few years ago, has sent us a major work based on an interview with Siegfried Böhm, who worked in the Zeiss Ikon camera design area after a wartime injury and gives us insight into these years and the years after the war when all of the major photographic manufacturing firms located in the East German zone were forced into a single state enterprise as what they called the Kombinat (Combine) for greater control and efficiency. Alex is a journalist specializing in medical mat-

ters but has produced a number of books on the Zeiss-related cameras of the immediate postwar period.

Simon Worsley revisits and updates his article from many editions ago on camera-body serial numbers and explores the first new Zeiss Ikon camera after the 1926 merger, the Ikonette. As for me, for my contribution with the aid of Rolf Fricke, we were able to combine what little catalog information there was on the first “Contax” which was manufactured by Contessa Nettel and sold by Carl Zeiss Jena. Strangely enough it was not a camera but a directional signal for automobiles, and Rolf had a document for a Leitz product that was remarkably similar. I also show examples from my collection of Contessa trademarks, to complement the cover illustration sent to us by ZHS member and contributor Peter Hennig from Sweden.

Iwould also like to express my thanks to our Treasurer and Editor for his search to find us a new printer closer to his home in Austin, Texas where the overhead to produce this journal has been significantly lowered, thus permitting us to operate more efficiently. I also thank him for his efforts in getting this edition out in record time. It is not easy to produce our Journal, especially when no new material is forthcoming. I thank our contributors for these original articles and the research and time that it takes to find material of interest to us all. This being said, I urge all of you to look into your area of expertise for something that would be of interest to all of us and forward it to the editor at the address across the page. Also, if there is something that puzzles you and you cannot find a satisfactory explanation, seek it via us and we shall try and resolve it for you and publish it for the rest of the membership.





Ikonette

The vest
pocket camera

For roll film

Picture size: $2\frac{1}{2} \times 1\frac{5}{8}$ "

Specification: Metal body with leatherette covering. Leather bellows. Strong baseboard and focusing scale. Stop for lens front. Optical equipment: Frontar F/9. Stops F/9, F/16 and F/32. Special shutter for time and instantaneous exposures ($\frac{1}{25}$ sec.). Brilliant view finder for longitudinal and vertical position. Removable film carrier facilitating loading of film. Tripod bush for vertical exposures.

For those desiring a somewhat larger picture than those obtainable with the Miniature Picture series, the Ikonette is a very attractive real vest pocket camera. Its small size ($1 \times 2\frac{1}{2} \times 4\frac{3}{4}$ ") and light weight ($10\frac{1}{2}$ oz) makes it an ideal camera for the ladies bag and it will also fit into the gentleman's watch pocket. It is so simple that even the beginner experiences no difficulty in manipulating it. The removable film carrier greatly facilitates loading. The lens aperture being F/9, the camera will naturally give best results in sunshine or good light conditions, but for all normal purposes excellent results can be obtained with instantaneous exposure.

Code No.	Size	Optical Equipment	Focus	Shutter	Price
Ikonette 504/12	$2\frac{1}{2} \times 1\frac{5}{8}$ "	Frontar F/9	$3\frac{1}{8}$ "	Special	.
Accessories :					
1738/12	Soft leather bag
1312/20	Metal Cable Release
Gift-Outfit :					
3981	Consisting of: camera, soft leather bag, 2 Zeiss Ikon roll films

The Ikonette as listed in the Zeiss Ikon Cameras and Accessories Abridged List C473E of August 1931. The illustration shows an Ikonette 504/12 version 3.1 Figure 1

The first Zeiss Ikon camera

Lieutenant Colonel Simon Worsley, Royal Artillery
Mönchengladbach, Germany

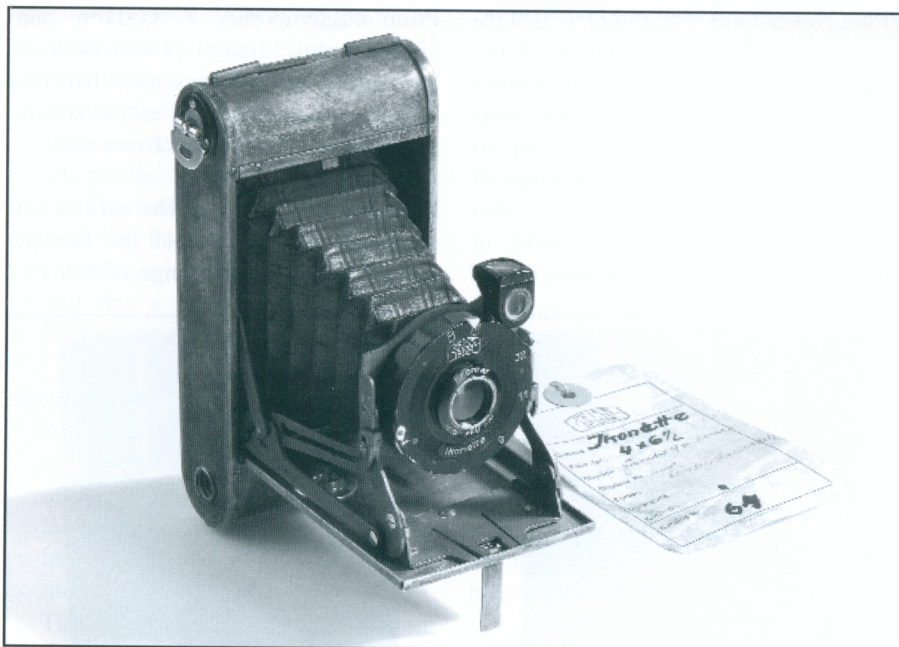
In 1928 this little folder became the first in a long line of cameras produced by the new consortium, and it remained in the catalogue until 1932.

Zeiss Ikon inherited a plethora of camera models from the companies that had been merged to create the company in 1926. The new company's first general photographic catalogue,¹ printed in early 1927, illustrated the huge range Zeiss Ikon was now responsible for; it lists 76 individual camera models with a stag-

gering 1,087 different combinations of film size, lens and shutter. The management at Zeiss Ikon appears to have soon realised the commercial folly of such an excessive and mutually competing product range, and their December 1927 catalogue² offered only 40 different camera models (with just 497 variants!) to the

German market. This catalogue also marked the introduction of the first camera to come purely from the Zeiss Ikon stables, the Ikonette (although with the proviso that it would not be available until April 1928).

This first product of the new company (although the only patent³ I can find referring to the Ikonette suggests that was probably a product of the Stuttgart-based Contessa Works design team) was far from revolutionary, but it did respond to the growing popularity for smaller format. As an English-language Zeiss Ikon catalogue⁴ put it, "For those desiring a somewhat larger picture than those obtainable with the Miniature Picture series, the Ikonette is a very attractive real vest pocket camera." (See figure 1.)



A prototype Ikonette, with its original Zeiss Ikon museum label identifying it as a *Versuchsmodell* or experimental model. Note that the lens and shutter assembly is supported by a simpler structure than was used for production models, which apparently does not allow any focusing movement.

Figure 2

Design details

With a metal body and leatherette covering, the Ikonette used A8 roll film, better known by the Kodak designation of 127 VP film, to take eight 4 × 6.5 cm negatives. To reveal the lens and bellows, the metal strut on the baseboard is swung open and that in turn unlocks the baseboard, which can then be folded down until the side struts lock in place. The lens and bellows can then be extended by gripping the frame below the lens and pulling it out until it locks. The lens is a single element Frontar, with an aperture

of f/9 and a focal length of 9 cm (however, one contemporary source⁵ stated that the focal length was 8.7 cm). The shutter, called a Spezial, is set by a small lever protruding from the top of the shutter housing and had just two settings, B and M, with B for time exposure and M for instantaneous (about 1/25 s).

There is a “brilliant” view-finder, which rotates 90° to allow horizontal (or, as the English-language instruction booklet⁶ calls it, “transverse”) photography.

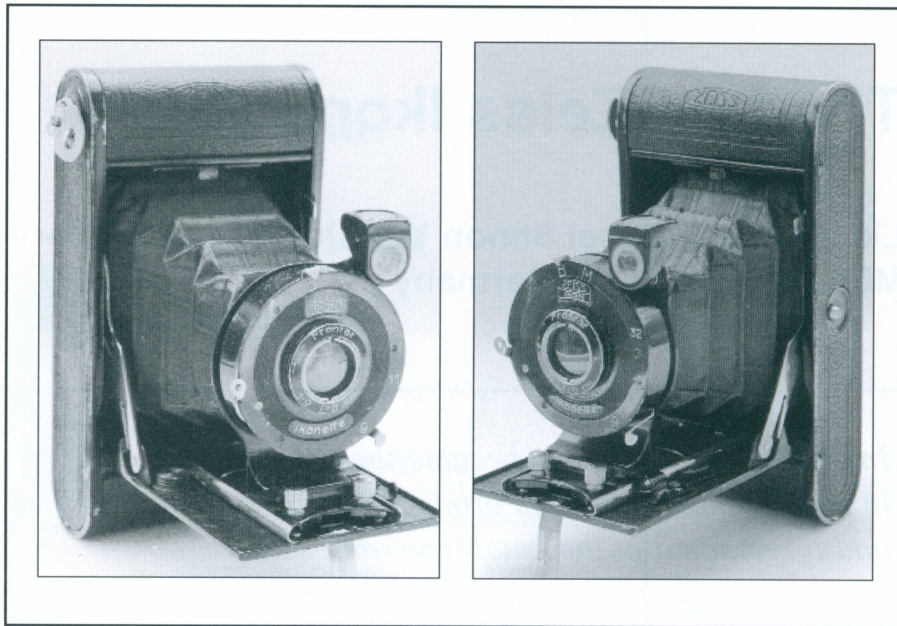
On the left of the shutter housing (the photographer’s left) is the “lever for regulating the diaphragm.” The aperture was set by rotating a circular plate behind the lens in which three holes had been cut, the so-called Waterhouse stops. Only three “f stops” are available, their values differing among the various models. Finally on the left side of the baseboard (as seen by the photographer) is the focusing scale, which has just two settings: infinity and either “2” (for meters) or “6” (for feet).

Ikonette prototype

A probable Ikonette prototype surfaced recently as Lot 632 of the May 2007 Westlicht Photographica Auction. The camera came complete with a Zeiss Ikon museum label, written “*Versuchsmodell*” (experimental model), has a very different lens stanchion than the production Ikonette, and the back is hinged. The lens/shutter housing seems to be identical to those from the Ikonette 504/12, v.2 (see below for a discussion of the different versions). This very interesting camera, which fetched a very interesting price, was well illustrated in Westlicht’s online catalogue (see www.westlicht-auction.com and my figure 2).

Prices and competition

When first announced, the Ikonette 504/12 cost RM 24.-. However, by February 1930,⁷ the price had risen to RM 26. -. In comparison, from the same February 1930 catalogue, the Box Tengor 54/14 with a Frontar f/11 lens and Spezial shutter cost RM 14.- whilst an Ikonta 520/2 with its more versatile Novar f/6.3 lens and Derval shutter cost



The Ikonette 504-12 v. 2, in two views. At this stage the camera had no cable-release socket, and the shutter control (B and M for *Briefe* and *Moment*) is on the front of the shutter housing, not readily visible by the photographer. The three lens apertures are f/9, f/11, and f/32. In the more common version 3 there is a cable release socket, the shutter markings are on top of the housing where the photographer can see them, and the apertures are f/9, f/16 and f/32. Figure 3

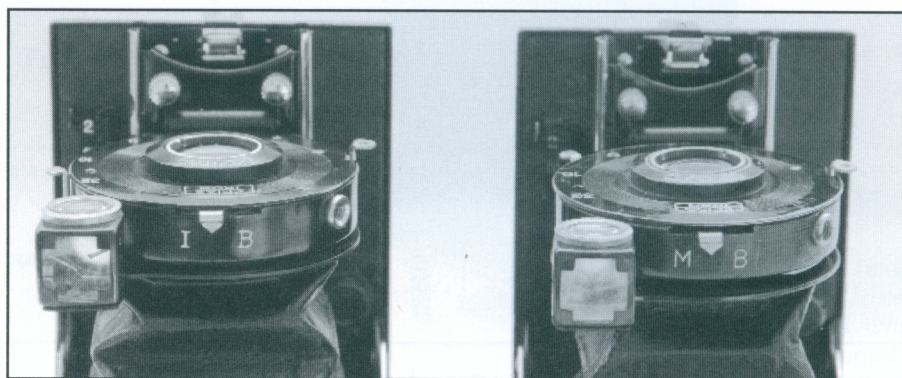
RM 40.-. However, in 1932 the Ikonette was phased out as Zeiss Ikon continued to promote the “new” format of 3×4 cm with cameras such as the Ikonta 520/18E with a Novar f/6.3 lens and Derval shutter (costing RM 31.50) and the Baby Box 54/18E with similar lens and shutter (costing RM 25.-). The May 1932 catalogue⁸ saw the Ikonette price drop to RM 20.70 (and also the belated entry of the dual-format Ikonette 504/18 — also RM 20.70) and a few months later, in July 1932⁹, came the last appearance of

the Ikonette 504/12 and 504/18 in a German-language catalogue.

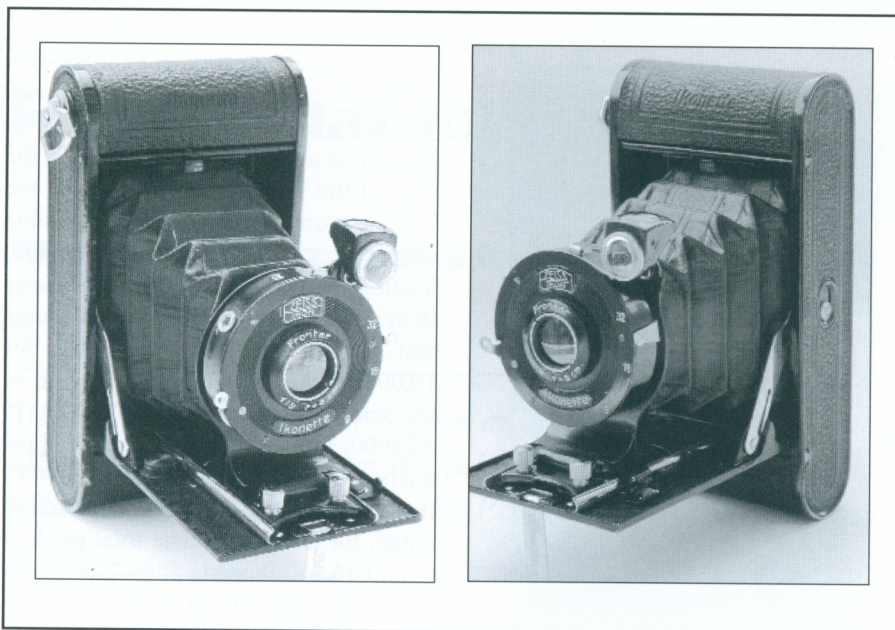
Variations

From contemporary Zeiss Ikon catalogues, plus direct examination of Ikonette cameras, I have identified four basic variants (and some additional sub-variants) of the Ikonette. These are:

Ikonette 504/12 (v.1). The earliest catalogue illustrations of the Ikonette show an aperture range of f/9, f/12



Top views of Ikonettes 504/12 v.3, showing on the left one for the English-speaking market with shutter markings I and B, for “instantaneous” and “bulb” or “brief” and on the right one with the German equivalents, M and B. Figure 4



Two views of an Ikonette 504/18. This model has an interior mask that permits the negative frame size to be changed from 4×6.5 cm to 3×4 cm, that is, either 8 or 16 on 127 “vest pocket” or A8 film. It was listed only in 1932. Figure 5

and $f/25$. Although this illustration was used between December 1927 and August 1928, I have yet to see an actual example of this variant and believe that it was probably a pre-production concept.

Ikonette 504/12 (v.2). From my Zeiss Ikon camera serial-number database, this is the earliest Ikonette version that was actually made available to the public. It differed from 504/12 (v.1) by having an aperture scale that read $f/9$, $f/11$ and $f/32$. An example of this version is in my collection and has a Fabrikationsnummer of N15591. (See figure 3.)

Ikonette 504/12 (v.3). First noted in an April 1929 catalogue and continuing to be illustrated in Zeiss Ikon German-language catalogues until its last appearance in a July 1932 German catalogue, this seems to be the most numerous Ikonette variant. The most noticeable change from 504/12 (v.2) is that the aperture scale is $f/9$, $f/16$ and $f/32$. However other changes from the 504/12 (v.2) are:

The addition of a cable release sock-

et on the right (the photographer’s right) of the shutter housing.

The latch on the left-hand side of the camera body that has to be manipulated in order to slide open the camera body for loading the film. It changed from a button that has to be depressed, to a knob that has to be slid upwards, revealing either the letter “Z” for *zu* (closed) or “A” for *auf* (open).

The film-winding key is more substantial and now reflects the trademark Zeiss Ikon lens-doublet design.

During the production of v.3 the shutter-speed markings were moved from their position on the front of the shutter housing to a more practical location on top of the shutter housing and therefore visible by the photographer whilst holding the camera normally. I have designated this **504/12 (v.3.1.)**.

A number of minor variants of the Ikonette 504/12 (v.3.1.) show differences in the shutter-speed markings, either MB (German) or IB (English), (figure 4) and the focusing scale marked

with either “2-∞” (metric) or “6-∞” (feet, Imperial measure):

Ikonette 504/12 (v.3.1.1.), with shutter speed “IB,” focusing scale “2-∞”.

Ikonette 504/12 (v.3.1.2.), with shutter speed “IB,” focusing scale “6-∞” (I recently acquired an example of this variant with a Fabrikationsnummer of O68082).

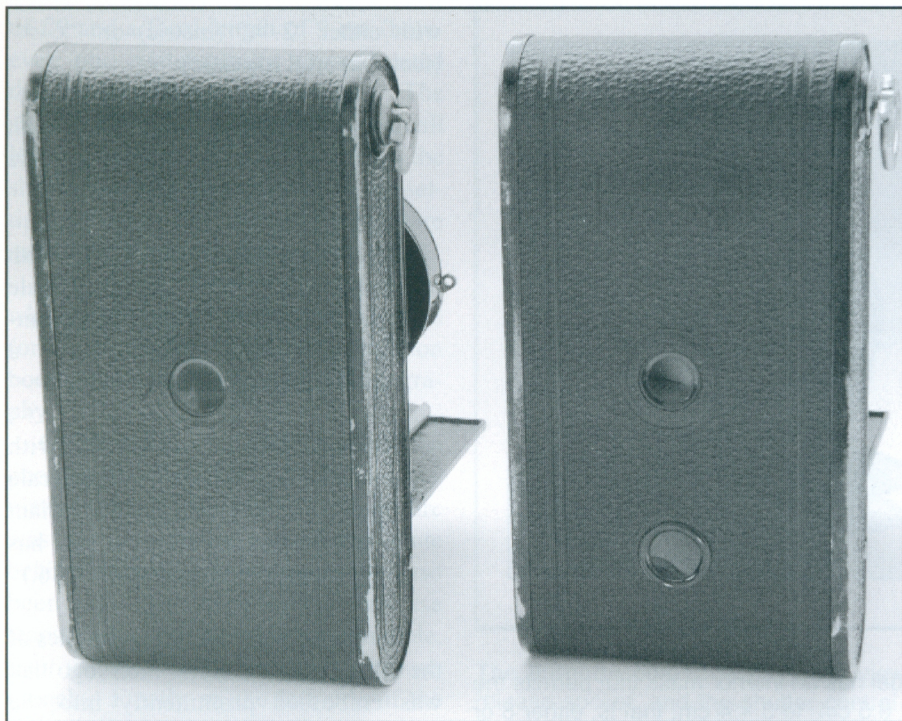
Ikonette 504/12 (v.3.1.3.), with shutter speed “MB,” focusing scale “6-∞.” (An example of this variant is in the Editor’s collection, and has a Fabrikationsnummer of O45736.)

I have also noted on later examples of the 504/12 that the Zeiss Ikon logo that was embossed prominently into the leatherette on the front of the camera body, above the baseboard, has been replaced by the camera name “Ikonette,” with the Zeiss Ikon logo now relegated to the back of the camera. This variant has been designated **504/12 (v.3.2.)**.

Shutter speeds marked I and B and focusing scale marked 2 – ∞ have been noted on 504/12 (v.3.2) and this variant has been designated **504/12 (v.3.2.1.)**.

Shutter speeds marked I and B and focusing scale marked 6 – ∞ have been noted on 504/12 (v.3.2) and this variant has been designated **504/12 (v.3.2.2.)**.

Ikonette 504/18 (v.1). Nearly identical from the front to 504/12 (v.3.2.), this Ikonette (figure 5) was modified by the use of a removable internal frame to take either 4×6.5 cm or 3×4 cm negatives on A8 film. Externally the most obvious difference is the two red windows at the back of the camera, compared to one in the 504/12 (see figure 6). From catalogue references, the lifespan of the 504/18 seems to have been only a few months, May to July 1932. To confuse matters further, the Ikonette 504/18 in my collection (Fabrikationsnummer R12715), which is complete with two



Back views of two Ikonettes. On the left is a 504/12, and on the right a 504/18. The two red windows on the 504/18 are for use when the internal mask is in place and 3 × 4 cm negatives are desired; one winds the film so that each numeral on the film backing paper appears first through the first window, then through the second. Relatively few of these models were made. Figure 6

red film windows and the template for 3 × 4 cm negatives, is also marked on the base of the camera “504/12.” It came in an original Zeiss Ikon packing box, also labelled 504/12.

Like the 504/12, the Ikonette 504/18 has been noted with the shutter speeds marked I and B. I have designated this variant as **504/18 (v.1.1.)**.

In summary

Ikonette 504/12 (v.1) – Believed to have only been a design mock up; aperture scale of f/9, f/12 and f/25.

Ikonette 504/12 (v.2) – Differs from 504/12 (v.1) in that the aperture scale now reads f/9, f/11 and f/32.

Ikonette 504/12 (v.3) – Differs from 504/12 (v.2) with aperture scale reading f/9, f/16 and f/32, plus revised body catch and provision of cable-release socket.

Ikonette 504/12 (v.3.1) – Differs from 504/12 (v.3) as shutter-speed marking moved from the front to the top of the shutter housing.

Ikonette 504/12 (v.3.1.1) – Differs

from 504/12 (v.3.1) only in shutter speeds marked I and B but focusing scale in metric measurements.

Ikonette 504/12 (v.3.1.2) – Differs from 504/12 (v.3.1) only in shutter speeds marked M and B but focusing scale in imperial measurements.

Ikonette 504/12 (v.3.1.3) – Differs from 504/12 (v.3.1) only in shutter speeds marked I and B but focusing scale in imperial measurements.

Ikonette 504/12 (v.3.2) – Zeiss Ikon logo now on the back of camera, front marked Ikonette.

Ikonette 504/12 (v.3.2.1) – Identical to 504/12 (v.3.2) but with shutter speeds marked I and B, focusing scale in metric measurements.

Ikonette 504/18 (v.1) – Similar to the Ikonette 504/12 (v.3.2) but adapted to take either 4 × 6.5 cm or 3 × 4 cm negatives.

Ikonette 504/18 (v.1.1) – Identical to the 504/18 (v.1) except that the shutter speeds are marked I and B but the focusing scale is marked in metric measurements.

I have quoted, above, the alphanumeric serial numbers, or Fabrikationsnummern, of several Ikonette cameras. The vast majority of Zeiss Ikon cameras have these unique numbers, which in the case of the Ikonette are stamped in the interior frame of the camera and visible when the camera is opened for film loading. From my research into Zeiss Ikon camera serial numbers¹⁰ I estimate that the first production batch was for 10,000 of the Ikonette 504/12 (v.2), in the serial number range of N12001 to N22000, followed by a further six production runs of the Ikonette 504/12 (v.3), serial numbers in the O, P and R range, for an approximate total production of 45,000 Ikonette 504/12. Regarding the Ikonette 504/18, I have only limited data on this camera and a very rough estimate suggests that fewer than 5,000 of these cameras were made (with serial numbers in the range R12xxx to R17xxx, the last Ikonettes made). I would welcome further data on the Ikonette 504/12 and 504/18 to help refine these estimates. You can reach me at simon_worsley@yahoo.co.uk

References

- 1.C219, *Zeiss Ikon Cameras*, undated but before May 1927.
- 2.C292, *Camera Auszugliste Zeiss Ikon*, December 1927
- 3.The only patent associated with the Ikonette (for the way the film spool was mounted) that the author has identified was assigned to the Zeiss Ikon Akt.-Ges. Contessa-Werk in Stuttgart. (It is number DRP 481425, dated 1 August 1929).
- 4.C473E, *Zeiss Ikon Cameras and Accessories Abridged List*, August 1931.
- 5.Karl Pritschow, *Die Photo-graphische Kamera und Ihr Zubehör*, Wien 1931.
- 6.C2288aE, *Instruction for using the Ikonette No.504/12 for 4×6½ cm*, January 1929
- 7.C352b, *Cameras und Zubehör 1930*, February 1930.
- 8.C505, *Zeiss Ikon Cameras-Auszugliste 1932*, May 1932.
- 9.C505, *Zeiss Ikon Cameras-Auszugliste 1932*, July 1932.
- 10.For further details on Zeiss Ikon camera serial numbers see the author’s article on page 20 of this issue. □

From Syntax to Praktina

Alexander Schulz, Eppelsheim, Germany

Siegfried Böhm's career began at Zeiss Ikon in 1939 and continued, after 1943, with work on the failed Syntax and then, after the war, with KW on the Praktiflex, the Praktica, and the Praktina.

On a sunny day in May 1943 Siegfried Böhm limped with his walking stick along Schandauer Street in Dresden towards the Ica works of the Zeiss Ikon AG. Böhm, born in 1921, had been a design engineer with Zeiss Ikon before the war, and after being wounded during active duty and then temporarily discharged from the Wehrmacht as unfit for further service was about to present himself once again to his former employer.

Zeiss Ikon in 1939

Zeiss Ikon AG in Dresden had its classical period in the years leading up to 1939, with significant developments and rationalisations in the camera and specialised cinema fields as well as in the building of scientific tools. However, this was also the time when the enormous production of armaments began; from 1938 to 1944 it increased by 36 percent per year and in 1944 constituted over 95 percent of overall production, being mainly optical-mechanical measuring and homing devices.

During these years, Zeiss Ikon was on the look out for qualified scientific-technical junior employees, with some attendance at an engineering school on their record and who would be ready for further scientific training at a technical college or university after the final victory. Siegfried Böhm (figure 1) had fulfilled these entrance conditions,

with GCSEs, attendance at the Dresden engineering school and a two-and-a-half-year traineeship in the Saxonian Cardboard Box Factory's drawing office and production. After an interview with the personnel manager of the Zeiss Ikon drawing office, engineer Oscar Fischer, Böhm was assigned to the camera equipment department.

In this open-plan office he had to work at first on tables for lens hoods and other tasks which, to him, were undemanding. His performance greatly pleased his superior, who was frequently surprised by the speed with which this

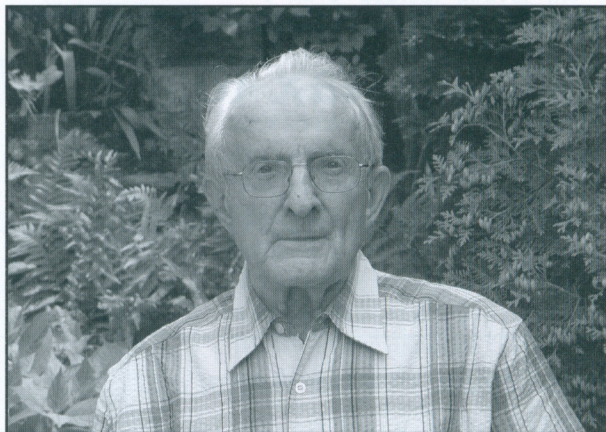
young auxiliary technician finished his work. Böhm endured this work for just two weeks before asking for a transfer to the camera-development department. Fischer was flabbergasted; Böhm was the first person to request such a thing. But eventually he consented and sent Böhm to Friedrich Schieber in the camera-shutter department. Schieber himself, who as a young man had worked in Munich for the Deckel company, had been called to Dresden by Heinrich Ernemann (1850–1928) to design “central” shutters, that is, focal-plane shutters, for the Ernemann cameras.

How I got acquainted with Siegfried Böhm

My first contact with Siegfried Böhm dates back to 1993, when I was preparing my first book on the Contax S. At that time, the history of this camera was still muddy, especially with regard to the so-called Syntax project of Zeiss Ikon. I remembered that I had read that Siegfried Böhm, the “Father of the Praktica,” had worked at Zeiss Ikon as a young engineer. I looked for his address in the Dresden telephone directory, and indeed, I found his name and telephone number, rang him up and asked for an interview.

Böhm agreed, and I took the next night train from Frankfurt to Dresden. This trip was followed by a number of further visits, even after I finished my second book on the Contax S, published in English. I taped these conversations and discussed drafts of the transcriptions again and again, until the present story about the designing of Böhm's *chef d'oeuvre*, the Praktina, emerged.

My next visit with Böhm will take place in the summer of this year, and I am looking forward to presenting him with a copy of this paper, published in the Journal of the Zeiss Historica Society of America. *Alex Schulz*



Siegfried Böhm in 1952 (left) with his newly developed Praktina, and in 2005 (above) in a photograph by Schulz.

Figure 1

Friedrich Schieber was an inventive specialist who knew about the production processes of precision mechanics and optics and designed some tools himself; he was always keen to pass on the benefit of his experience to younger employees. During his training period, Böhm learned about the complexity of the Contax II's vertical travelling focal-plane shutter. At that time, some improvements had just been made on this camera, such as enlarging the shutter knob.

After the War began Zeiss Ikon tried



Hubert Nerwin (1906–1983), head of Camera Development at Zeiss Ikon from 1932 to 1945.

Figure 2

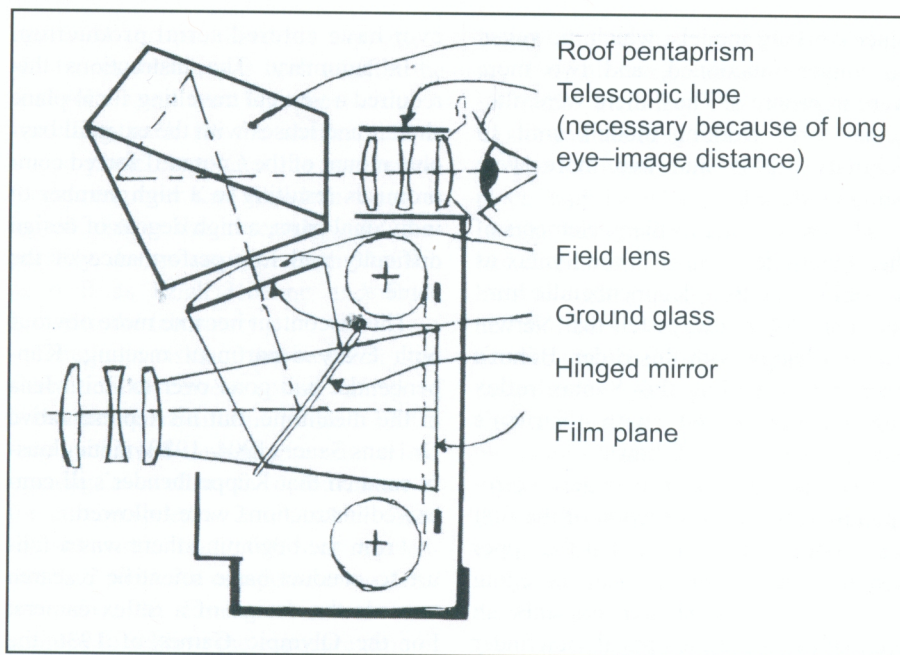
to make the Contax a more attractive proposition to war correspondents and their employers by, for example, synchronising the shutter for photoflash bulbs. However, most of the war correspondents continued to prefer the Leica.

It was just at this time, in 1939, that the Osram company had developed the first vacuum photoflash tubes, and Böhm was assigned to design an easy-to-use adjustable trigger switch for them. The responsible laboratory was still testing the burning characteristics of the tube, but had not yet come to a conclusion, when Böhm developed a simple switch with which the ignition point was easily adjustable by the user to set the ignition point from outside. It was as a result of such tasks that Zeiss Ikon AG's Technical Director and Chief Engineer, Dr Heinz Küppenbender (1901–1981), took notice of the young designer and decided to examine Böhm's work directly at the drawing board. Detailed rules of conduct preceded this meeting. Böhm was not to begin a discussion in the presence of Küppenbender and could only answer questions. His design draft for the synchronization switch was accepted, but another suggestion—for simplifying two construction elements in the Contax II—was not. Unfortunately, this was to be his last design task for some time. In December 1939 Böhm was conscripted into the air force. Küp-

penbender himself was called into the management of Carl Zeiss Jena in 1941, and was made Wehrmacht Economics Director in 1943. Böhm's own characterisation of Küppenbender's career after that, which he expressed much later, was "After the war Dr Küppenbender became director in Stuttgart, where his misguided model policy of a reflex camera with a between-the-lens shutter, generally to become adopted in Western Germany, ultimately ruined the German Federal Republic's camera industry."

At Zeiss Ikon (1943 to 1945)

So Siegfried Böhm was no stranger to his environment, when, in the spring of 1943, he took up work at Zeiss Ikon for the second time. In the air force he had been assigned by the military as an instructor, a task that did not suit him at all. Therefore, the military hospital's ward doctor put in a word with Zeiss Ikon personnel manager Oscar Fischer, who most likely remembered the young assistant design engineer from 1939. Fischer then made an urgent request for Böhm's employment for armaments with Zeiss Ikon, which was granted by Wehrmacht Economics Director Dr Alexander Ernemann (1878–1956), so that Böhm returned to the place from which he went to war at the end of 1939. However, instead of entering into armaments as had been planned, he was sent



The Syntax, shown in a sketch made by Hubert Nerwin (previously published in *Zeiss Historica*, Spring 1981.) Note how the position of the upper shutter roller requires that the pentaprism and mirror be tilted forward. Figure 3

back to his original department under Friedrich Schieber. And this time Böhm remained in this department until the Dresden bombing on the night of 13/14 February 1945 abruptly ended his employment.

Until that time life in Dresden had been fairly peaceful, although to the West, half of the Rhineland was already destroyed. Dresden's shops and bars were open, and the opera still performed. It was rumored that Churchill had a lady-friend there and that therefore the city was spared air raids. Yet the overcrowded hospitals, the many wounded soldiers in the streets and the daily news of Wehrmacht casualties dampened the population's morale.

At Zeiss Ikon, besides the coming and going of air-force engineering officers, another reminder of the war was the working team around Wilhelm Winzenburg (1895–1972), who was then head of the military technical department that was entrusted with armament tasks and therefore given by far the largest working space in the plant.

The Syntax Project

From approximately 1937 work on the 35 mm SLR project named Syntax was

conducted with varying degrees of intensity in the Camera Development Department under Hubert Nerwin (1906–1983, Head of Camera Development from 1932 to 1945; figure 2) and in the Shutter Development Department, headed by Friedrich Schieber. This was a project to design a single-lens reflex camera that would use, like the earlier Contaflex and the Super Nettel, as many Contax elements as possible—especially the vertical-travelling focal-plane shutter and the external bayonet lens mount.

Küppenbender himself, in the early 1930s, had designed the vertical-travelling steel-blade focal-plane shutter. Designed with the help of some engineers from the Camera Department around Martin Nowicki, the Contax I was intended to be superior to the already successful Leica with regard to decisive technical parameters, such as the measuring base of the rangefinder and the construction and performance of the shutter.

However, changes in the design delayed production. The initial production phase of the Contax I was marked by recalls of already delivered cameras and adaptations in the working parts. From May 1933 the Contax I was deliv-

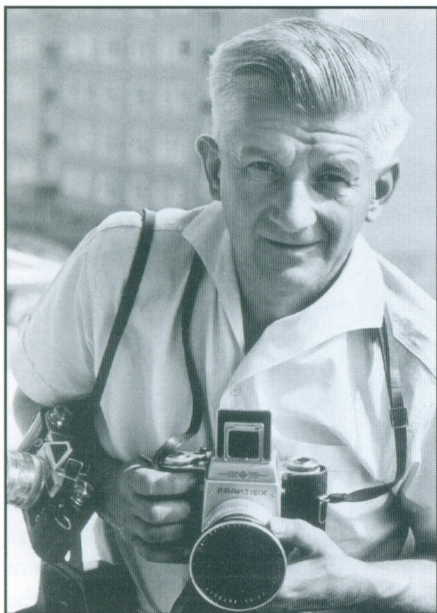
ered with a newly designed shutter. Further basic changes to the shutter took place during the next two years so that from 1936 onwards the Contax I was produced with an entirely redesigned shutter.

Küppenbender enjoyed giving lectures to scientific committees on the features of focal-plane shutters in 35 mm cameras, for example at the Scientific Institute of the Technological University Dresden. In these lectures he always made a point of explaining the advantages of vertical-travelling compared with horizontal-travelling shutters. His research suggested that under certain conditions horizontal-travelling shutters caused distortions and inconsistent exposure across the film plane. Thus the influence of Küppenbender on camera development became unassailable at Zeiss Ikon. His insistence on the vertical-travelling focal-plane shutter, with its horizontally aligned feed rollers above the film aperture, was later to cause such a headache in the development of the Syntax.

The first Syntax model (figure 3) was practically a Contax II body with its vertical metal focal-plane shutter, without the combined view- and rangefinder but instead equipped with a reflex mirror, which delivered the image upright and the right way round via a roof pentaprism to the eyepiece at the back of the camera. However, the viewfinder image was too dark, and the addition of a field lens did not produce sufficient improvement. Only lenses with a maximum aperture of $f/2$ and faster could produce satisfactory images.

In a 1981 letter to Nicholas Grossman (a member of the Zeiss Historica Society and regular contributor to this journal), Hubert Nerwin described the problems experienced in locating the pentaprism and field lens. Both had to be tilted forward so that they would not interfere with the working of the upper shutter roll.

“The field lens was aligned at an angle,” wrote Nerwin, “in order to incorporate the viewfinder system in front of the upper shutter roll. When looking through the ocular, however, one did not notice the tilted surface. Only working



Erich Hoene (1912–1999), who showed Böhm a Praktiflex in 1944. Here he carries a Praktina and a Praktisix. (Photo: Dora Hoehne, around 1970.) Figure 4

models were produced.” And further down: “Remember, please, the original design was made as an additional camera body with an upright and side correct reflex image to be used with existing Contax II lenses that have an outside bayonet mount. The shortest focal length that could be used with this camera body was the Sonnar 2/85. My immediate connection with this camera ended with the production of some working models according to the enclosed drawing. These models were produced in the years 1940 to 1944.”

Böhm, too, knew of a working model that in 1944 was kept at the executive level. The viewfinder image was tiny because the prism had to be kept very small, due to the vertical travelling focal-plane shutter, resulting in unusually severe cropping of the image. The viewfinder image was far smaller than the image on the film. In addition, there was no image field lens between mirror and prism. Instead, the underside of the roof prism was matted, that is, made into a ground-glass focusing screen, so that with an $f/3.5$ lens only a rather dark image could be produced. “In fact, one could see something only in bright light, that is, sunlight,” Böhm recalled. According to him, there were also two

other working models, which, however, no longer functioned, and two more were in progress. Thus, there were altogether three working models until 13 February 1945 and two more were being produced.

The order to use as many elements of the rangefinder Contax in the Syntax as possible came from Küppenbender himself, and Böhm always felt that Nerwin was not happy with this order. Böhm’s memories regarding this Syntax reflex camera correspond with Nerwin’s remarks and read as follows:

“The principal sketch largely corresponds with the construction of the first test models. One can see that the upper take-up roller of the vertical travelling metal focal-plane shutter prevents an optimal design of the optical viewfinder system. The reflex mirror had to be moved forward and thus the whole viewfinder system. The use of standard lenses $f=50$ mm was not possible due to their design. Tilting the prism did not help either.

“Another problem was the existing lenses. With apertures of $f/3.5$ and $f/4.4$ respectively a bright viewfinder image could not be achieved.....

“I witnessed the last phase of the Syntax from May 1943 onwards. The management of Zeiss Ikon AG was prepared to enter the market with a new camera program after the war, disregarding its outcome.”

Problems with the Syntax

So this was the situation Siegfried Böhm found himself in upon re-entering Zeiss Ikon. The department for shutter development consisted of the head, Friedrich Schieber, two draughtswomen and four design engineers. And Küppenbender insisted from the beginning that the rangefinder Contax shutter should be used in the Syntax. Since this travelled vertically but the setting mechanism was arranged horizontally, the direction had to be changed via a complicated mitre gear requiring many high precision construction elements. Eventually, a total of 750 individual parts was needed for camera and shutter, which would have been an “outrageous imposition,” in Böhm’s words, should the camera

ever have entered serial production.

In summary: The instructions that required a vertical travelling focal-plane shutter and lenses with the external bayonet mount of the Contax II forced compromises resulting in a high number of individual parts, a high degree of design difficulty and low performance of the camera.

The discontent became more obvious with every department meeting. Küppenbender had gone over to Zeiss Jena in the meantime, but his representative Dr Hans Sauer (1904–1980) meticulously ensured that Küppenbender’s ill-conceived instructions were followed.

From the beginning there was a failure to conduct basic scientific research towards the design of a reflex camera. For the Olympic Games of 1936 the Flektometer had been built for the rangefinder Contax, an attachment that transformed this camera into “half a reflex camera,” but nobody hit upon the idea of designing a proper reflex camera from the start.

By chance Böhm got his hands on a Praktiflex camera made by the Kamerawerkstaetten Niedersiedlitz. This was in the autumn of 1944 and was thanks to Erich Hoehne (1912–1999), at that time laboratory assistant and photographer, but after the war a photo correspondent at the Saxonian Newspaper and one of the best known photographers in Dresden (figure 4). In this camera, the cover plate cap was taken off and what Böhm saw “stood in crass contrast to the effort made over the Syntax.” Interested, he studied the horizontal arrangement of the parts, the simple wind-up/setting mechanism and the shutter-release mechanism connected with the mirror movement.

After that experience, Siegfried Böhm succeeded in obtaining permission from Friedrich Schieber for a fundamental performance test of a four-roller rubberised-cloth-blind focal-plane shutter as was used in the Praktiflex. Only the exposure times $1/1000$ s and 1 s were to be tested, because if these were correct, it could be assumed that those in between would also perform correctly.

After talking to Nerwin, Schieber

approved and promised his support. A shutter test bench was built to affix the four rollers and their big wheel disks. A travelling track for the shutter and an image plane completed the test bench. Design engineer Karl Wunderlich participated also in this research with, temporarily, design engineer Rudi Mueller, as well as Erich Hoehne and Erich Lohse in the laboratory.

The main tasks of this research consisted in the correct spring tuning of both curtains, realisation of the 1/1000 s time (achieved through pre shutter slit opening, as well as by optimisation of the curtain speed to 2 m/s, which fixed the slit width for 1/1000 s at approximately 2 mm). An escapement regulator from an older Ernemann camera was adopted to achieve the exposure time of 1 s. The feed and take-up rollers were identical, likewise the two rubberised cloth curtains, so that only one cutting for both was necessary.

With this setup it was found possible to guarantee satisfactory uniform travel of both curtains with a four-roller rubberised-cloth-blind focal-plane shutter and thus achieve a stable short exposure time of 1/1000 s.

In January 1945 Siegfried Böhm was working to summarize the measuring results and he produced five sketches for a possible design of a horizontal travelling focal-plane shutter with film transport and mirror mechanics. With this design, the number of individual parts could be reduced by around 30% compared with the Syntax as it then stood. At the beginning of February 1945 Nerwin received this report directly from Böhm, because Schieber had fallen ill. Nerwin offered Böhm some remarks and additions and on 10 February 1945 the appropriately revised report was again handed over to Nerwin.

All this happened at a time when the general atmosphere within the company was rather tense. Since January 1945 the roar of gunfire from the Weichsel front line could be heard during the cold, clear winter nights. This, of course, produced a high amount of insecurity and fear also among the Zeiss Ikon employees, and defeatist feelings began to grow. The Soviet major offensive had already

begun, and on the evening of 13 February 1945 all was destroyed by the Allied air raids, including the demonstration model and the final report.

The Ica works, where Böhm's workplace had been, was not hit by the bombs, but opposite it two aerial mines had detonated. The ensuing pressure had burst the glass panes on the south face and all floors were gutted. The heat had been so great that the glass melted in two rangefinder Contax cameras with Olympia Sonnars, which had been kept in Böhm's desk drawer. Of his whole workplace, desk and drawing board only the metal skeletons remained, as was the case with all items on the south face, while on the north face some scorched drawing boards survived.

A new start

The events of 13/14 February 1945 had dissolved the complete shutter department of the Syntax project. Three employees were missing, and only Friedrich Schieber and Siegfried Böhm had survived the bombing, although Schieber had lost some relatives. He had other things on his mind during those days than occupying himself with the further development of the Syntax, while Nerwin began his preparations for leaving for the Contessa works in Stuttgart, planning to take some engineers, Böhm among them, with him. But the Soviet troops were already too close to Dresden so that eventually Nerwin left the city alone. However, he first gave Böhm instructions to rewrite the shutter report. He would "think up something for it," he added in the laconic manner characteristic of him. Thus Böhm set himself up in the Reick works in the Muegelner Street in the south of Dresden, where some drawing boards had survived, and began to write the report once again. When he finally finished it, the Soviet 5th Guards Army marched into Dresden on 8 May 1945 and Nerwin was already on his way to Stuttgart.

During the following days Kaiser, the works manager of the Zeiss Ikon Reick works, obtained passports in the Russian language, signed by the commandant's office, so that none of the company per-

sonnel could be assigned other tasks. And so Böhm sat in the Reick works until the end of May 1945 when, after several detours, he received Nerwin's request to send the report via courier to Stuttgart. This he did and Nerwin thanked him in return. Thus ended the contact between Siegfried Böhm and Hubert Nerwin.

Böhm said in retrospect: "I do not know who had the plan to move to Stuttgart. Was it Nerwin or Dr Ernemann? But one thing I know for certain: If Nerwin had arrived with a team of five to ten engineers in Stuttgart, the whole camera development at the Contessa works probably would have taken another direction. Nerwin then went to America in the course of the 'Paperclip' enterprise."

In the Reick works Soviet lieutenant Saizew, as engineering officer responsible for the Ica and Reick works, reparations and dismantling, eventually took notice of Böhm as he worked on his new camera design. As a disabled veteran he could not be put to heavy labor. Therefore he was assigned registry tasks and in the course of the dismantling of Zeiss Ikon had to sort and list everything that was there regarding camera parts, lenses and the like. Eventually, Böhm had to interrupt his work due to his war injury.

In August 1945 Böhm was called to work again in order to participate in the reconstruction of parts for the Contax II and III, which were to be produced as war reparations initially in Stalingrad, as it seems, but ultimately in Kiev. For this task only a few blueprints found in the safe of the Dresden Bank were available. Most parts had to be designed and drawn afresh. This job was carried out in the ground floor of the cleared-out Ernemann Tower building, with the design department to the left and the technological department to the right. The aim was to produce a complete set of drafts with all tolerance calculations, the worked-out technology and production of process instructions for pre-production and assembly, as well as the construction of all necessary appliances and gauges. At the end of February 1946, these tasks were finished. The documentation was sent to Jena for fabrication of tools for



The Contax S of 1949. This is the only known example of the type, and it has body number 303. Figure 5

the production of a pre-series production in Saalfeld.

In the Ernemann Tower electric light was available only temporarily, so that work had to be conducted mainly during the day. Heating was by two cylindrical stoves, which were not enough to get the room warm, so that during autumn and winter the employees had to freeze. Although it was bitter cold, there was some musical entertainment: The tower's upper floor hosted a dance floor from which loud music emanated.

The Beginnings of the Contax S

In the meantime, Wilhelm Winzenburg had gathered around him a couple of design engineers and, in the summer of 1945, began to build up a design department with an adjoining laboratory in the subsequent Pentacon Culture House in Schandauer Street.

In contrast to the Syntax, the Contax S was a prism viewfinder camera with horizontal travelling focal-plane shutter and M42×1 lens mount, so that the design difficulties that ultimately doomed the Syntax project were removed right from the start. The first rough outline of the Contax S is preserved in a photograph, signed by Wilhelm Winzenburg, dating from 6 August 1945. The optical calculation for the penta-ridge prism was still available in variations from the Syntax development period.

At that time, however, the research laboratories had not been rebuilt. There

were only testing laboratories, then under direction of Riedel and later Erhard Loose. The last two employees from the Zeiss Ikon research laboratory, Riedel and Koeber, left the works in 1948 to begin work at Zeiss Ikon in Stuttgart. The Dresden photographic and cinema industry's research laboratories for the subsequent VEB Pentacon, beginning in the VEB Kamerawerkstaetten Niedersedlitz, became available only in 1950.

The tools for the rangefinder Contax had to be produced in Jena, as the Zeiss Ikon works in Dresden had been dismantled, and yet two hand-made specimens of the Contax S were built in the relatively short period of two years. This quick success was possible because many machine tools had been stored in the outer warehouses of Zeiss Ikon, where they were not recorded for dismantling as they were not located in Dresden. With the help of Lieutenant Saizew a great number of them could be restored to the works, so that by the end of 1946 300 machine tools were in use again.

According to Böhm, Wilhem Winzenburg was on the right path with the idea of a new reflex camera with horizontal travelling focal-plane shutter. However, Böhm considered it a major mistake that Schieber was not given any part in the project although he had returned to the works in May 1945. He was considered to be the specialist for shutters per se and was so angered by

not being offered participation in the Contax S team that he left Zeiss Ikon in November 1945 to apply for a job with Carl Zeiss Jena. "If Winzenburg had involved Friedrich Schieber in the new reflex Contax project, the 1949 dilemma with the Contax S shutter probably would not have occurred," says Böhm. He was referring to the first series of the Contax S (figure 5), delivered almost entirely to the United States in 1949, in which many failures in the shutter function occurred, making necessary an interruption of production and a new shutter design.

In Niedersedlitz (1946 to 1952)

Böhm's Zeiss years came to an end at the end of 1945. On 2 January 1946 his work at the Kamerawerkstaetten in Niedersedlitz began. From there, 20,000 Praktiflex cameras were to be delivered each year to the Soviet Union as part of reparations, but by the end of 1945 only 1400 cameras had been produced, and moreover they did not pass the Soviet quality tests. The list of faults was long: Leakage of light, out-of-focus pictures, blurred pictures due to the long shutter release path, and difficulties with the film transport were some of the faults. For the Praktiflex to become competitive on the world market—and after all, this was the camera's purpose, to generate foreign exchange for the Soviet Union—the camera quality had to be improved. The Soviet Military Administration (SMA) reacted immediately and

instructed the Saxonian government to dispatch a specialist for eliminating those faults. Siegfried Böhm was informed by department head Hans Roell of the Saxonian government's ministry for industry that he was to report to Lieutenant Kaljushny in the Kamerawerkstaetten in Niedersedlitz at the beginning of January 1946. His instructions: To ensure quality control of production and construction, as well as to make a design revision of the Praktiflex.

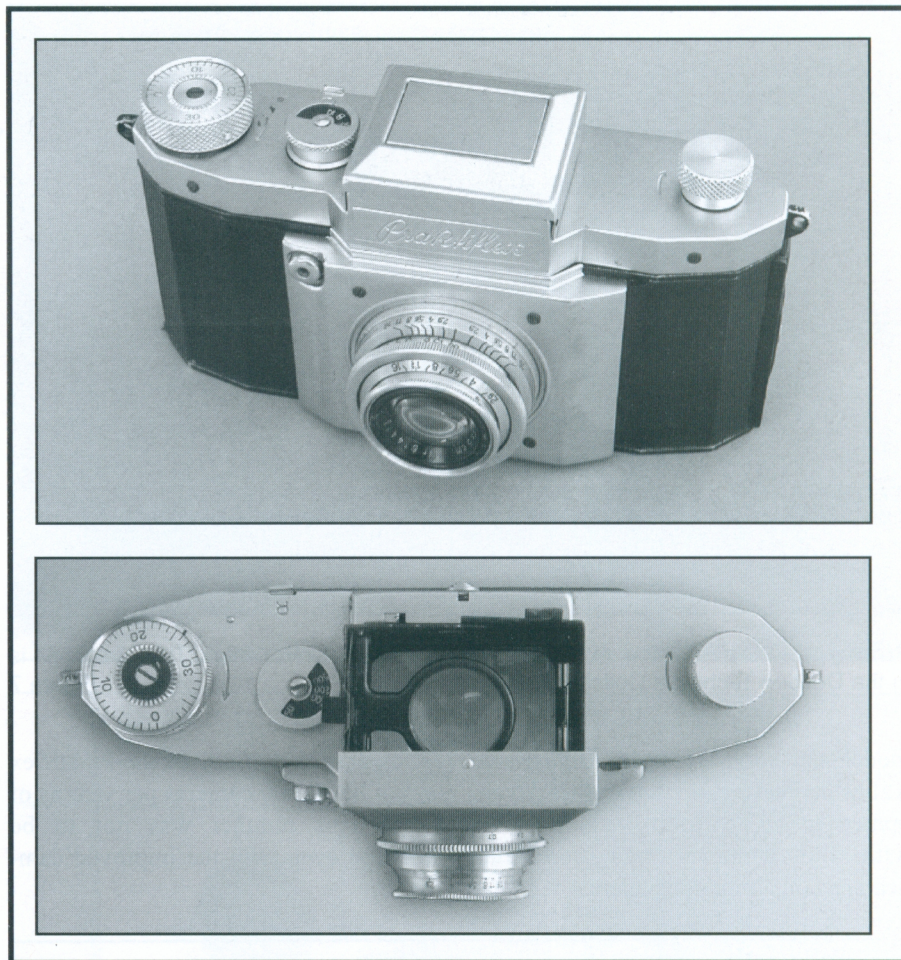
The Praktiflex

So Böhm had to report immediately to engineering officer Lieutenant Kaljushny. The atmosphere at the Kamerawerkstaetten was extremely tense. The responsible provisional head and three master craftsmen were unable to cope. Design engineer Alois Hoheisel was severely ill and had not been able to do his job since autumn 1945. Kaljushny was not happy with him, and Hoheisel never returned to the Kamerawerkstaetten; Böhm never met him personally.

By mid 1946 the first successes regarding quality assurance became visible. The SMA Dresden entrusted the Scientific Photographic Institute (SPI) of the Technical University Dresden with the quality control of the Kamerawerkstaetten. This move was much appreciated by Böhm, because the SPI's head, Professor Dr August Klughardt, was a practically inclined scientist.

The SPI under Klughardt supported Böhm most notably by setting limits for optical mechanical tests. This institute's involvement in the development of the new Praktiflex displays a significant trait in Böhm's method of working, as he was eager to base his designs on a well founded theoretical background. During the development of the Syntax at Zeiss he had criticised the lack of basic scientific research, and in his work at Niedersedlitz he avoided making this mistake right from the beginning.

In one of the meetings Klughardt recommended enlarging the lens mount to prevent vignetting when lenses with long focal length were used. Böhm's suggestion that they use the M42×1 lens-mount thread was accepted both by



Two views of the Praktiflex of 1946, after Böhm's modifications to Alois Hoheisel's original design. This is body number 043758. Figure 6

lens manufacturer Carl Zeiss Jena and Ludwig Weixdorf. First deliveries were guaranteed for mid 1947.

Another immediate change involved the instant-return mirror mechanism, which Hoheisel had based on older roll-film reflex-camera shutters. Its disadvantage was the inertia with which the mirror was lifted by the release on the top side, which negatively affected photographs of fast moving objects.

To remove this mirror's disadvantage, Böhm abandoned the instant-return mirror mechanism, showing it to be not actually necessary. Instead, he reversed the process to let the shutter be released by the mirror mechanism.

Furthermore, Böhm reduced Hoheisel's hitherto confusingly crowded exposure time sequence of B, 1/25, 1/50, 1/75, 1/100, 1/200, 1/300, 1/500 to five sensible exposure times: 1/25, 1/50,

1/100, 1/200, 1/500 plus B.

The required quality standards were achieved (figure 6) by the following significant changes:

Use of photo-electrical measuring devices for adjustment of shutter speeds,

Improvement of film-plane positioning by design changes and use of diecast parts,

Release knob on front, installation of a mirror mechanism to release the shutter.

In the second half of 1947 production of the Praktiflex with M42×1 lens mount began.

Praktica

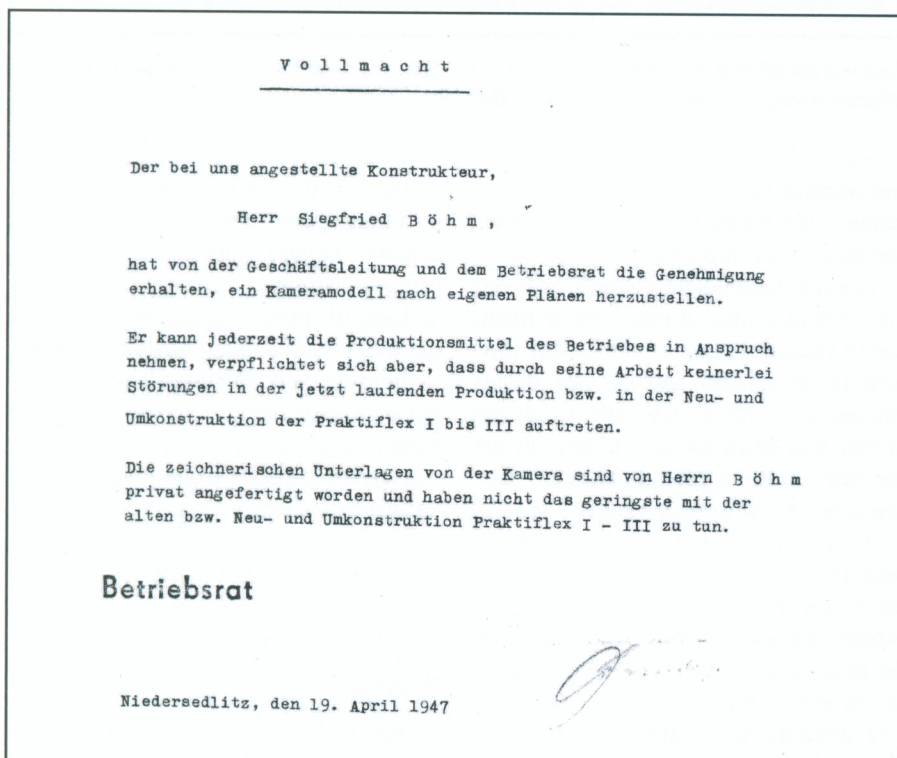
Siegfried Böhm's design activity did not, however, end with this second-generation Praktiflex with the M42×1 lens mount. Despite the significant improvements, this one was merely a transitory



Prototype of the Praktica, at that time (1948) called the Praktiflex. This specimen is in the Desden Technical Collection. Figure 7

model. As early as 1946, Böhm and Kaljushny had agreed that further development of the Praktiflex could not meet with the technical and economic demands on a modern camera.

Reparation delivery of the Praktiflex was to be 20,000 cameras per year as of 1949. This number was not to be achieved even with the improved camera.



Document authorising Böhm to build a model of the Praktina, dated 19 April 1947. It makes clear that Böhm had made his draft design privately. Figure 8

Kaljushny was pressed for success, so that the development of a new camera was highly urgent. Böhm designed a new shutter by incorporating all his research experience of 1944/45 regarding the four-roller rubberised-cloth blind shutter. This new shutter encompassed the exposure times $\frac{1}{2}$ s, $\frac{1}{5}$ s, $\frac{1}{10}$ s, $\frac{1}{25}$ s, $\frac{1}{100}$ s, $\frac{1}{200}$ s, $\frac{1}{500}$ s and B.

The escapement regulator's gear wheels were milled on old machines, so that the tooth profiles were not well cut and the contact surfaces not clean enough. This problem caused great variation in performance, especially in the long exposure time of $\frac{1}{2}$ s, which negatively influenced production.

Therefore, in the autumn of 1948, Kaljushny succeeded in getting Böhm, who as of 1 January of that year had been promoted works manager of the Kamerawerkstaetten by the Union of State-owned Enterprises (Vereinigung Volkseigener Betriebe; VVB), to deal exclusively with this problem. So Böhm was well supplied, including good accommodations in one of the SMA's outbuildings in Dresden.

This shutter was the most important innovation in the Praktiflex III, which was later renamed "Praktica." The prototype (figure 7) stored in the Technical Collections Dresden still bears the name of "Praktiflex" and in the United States the name "Praktiflex" for the Praktica persisted until 1954, because it was already so well established by the Praktiflex II. Compared to the Exakta, which featured independent slow and high speed shutter dials for its long and short exposure times, the Praktica made do with only one combined dial for setting long and short shutter speeds. The idea of a combined shutter dial for the long and short exposure times was new at the time and, apart from the Praktica, realized only in the so-called Contax S being developed almost simultaneously. The Praktica was technologically precise and practically the first 35 mm reflex camera to be produced and assembled in large numbers. For example, production could be increased from approximately 2200 to approximately 20,000 cameras within the year following the start of production in 1949.

Members of the Praktina team, around 1952. Top picture, left to right: Werner Kuehnel, Böhm, Gerd Jehmlich. Lower picture, left to right: Böhm, Ingrid Haedrich, Friedrich Winkler. Figure 9

Siegfried Böhm could draw from his experiences made during investigation of the four-roller shutter in 1944/45 for his innovations on the Praktiflex and then the Praktica. “When I took up work at the Kamerawerkstaetten at the beginning of 1946, I did not have to think long. I had everything that was to be done in my head already. And I immediately introduced it there,” he recalls.

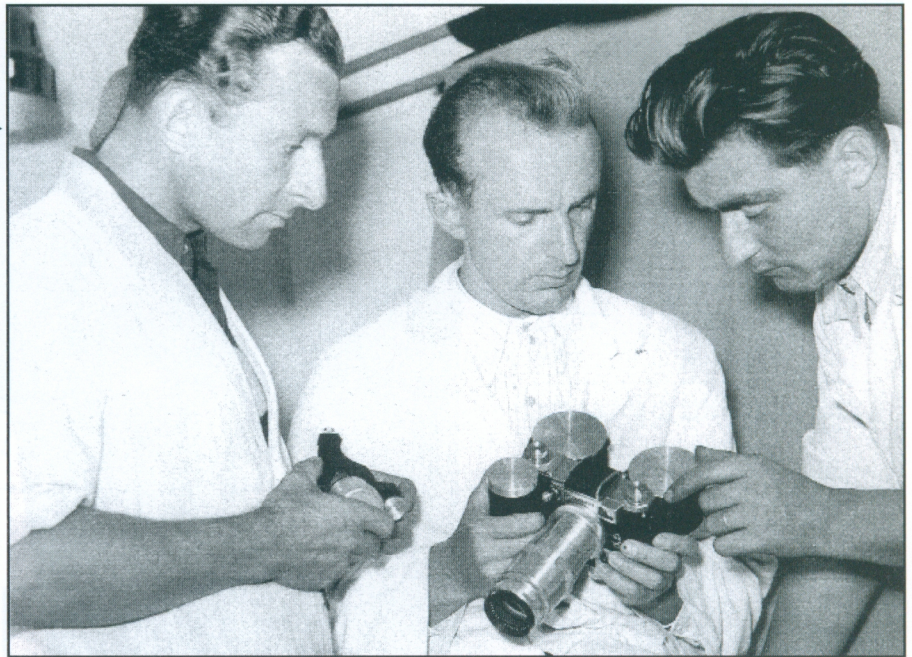
Praktina

Böhm would not have been the innovative designer he was, had he contented himself with the further development of the Praktiflex and Praktica. The Syntax made him restless. Therefore, as early as 19 April 1947—when the Praktiflex had just received its M42 lens mount—he obtained “permission to produce a camera model based on original plans” from the Niedersedlitz management and works committee (figure 8). For this, he was allowed to use the production facilities of the works so long as these activities did not disturb the new design and reconstruction of the Praktiflex I to III. Those type designations “Praktiflex I to III” refer to the Praktiflex with M40 thread (I), the Praktiflex with M42 thread (II) and the Praktica, which initially also was named “Praktiflex” (III).

The last paragraph of this “authorisation” is interesting. It states “This camera’s drafts were made privately by Mr Böhm and have nothing to do with the old and new design and reconstruction Praktiflex I – III.”

It was an entirely new camera indeed, and it took shape on Böhm’s home drawing board after work. Firstly, the exposure time settings had to be simplified to such an extent as to render the pushing or lifting of a lever as in the Contax S, or a knob as in the Praktica, unnecessary. Instead, only the setting disc was moved. According to Böhm: “The Syntax shutter should also have operated on this principle.”

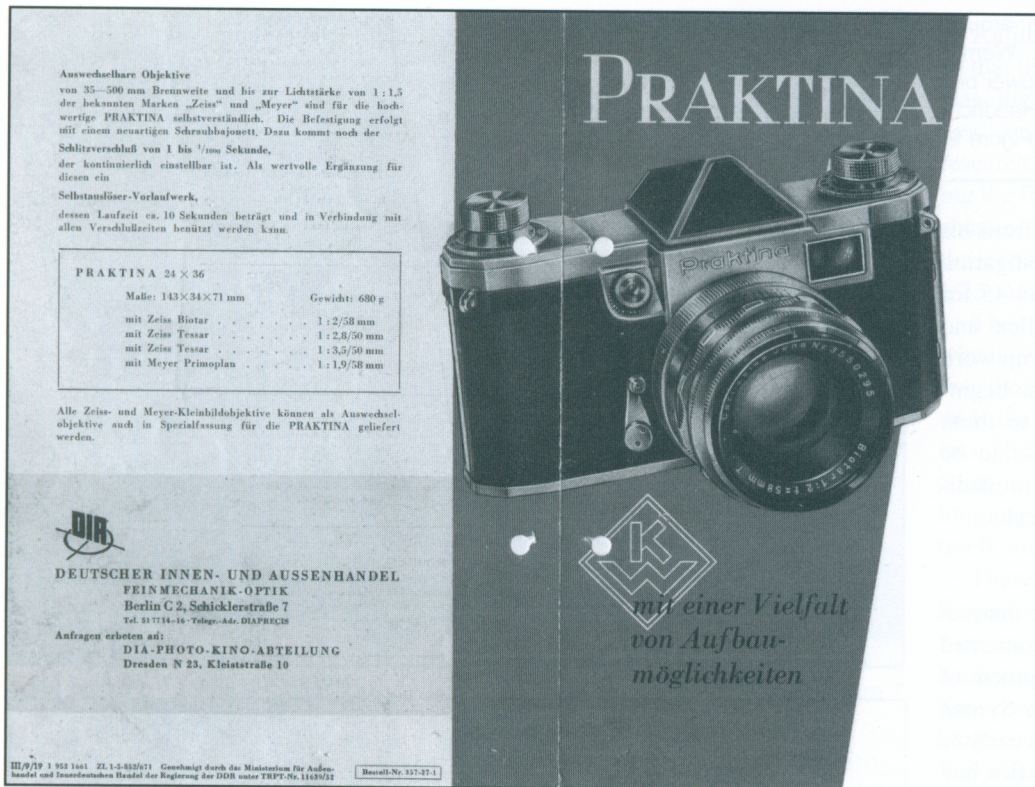
As early as 1944/45, in his report to



Nerwin, Böhm had suggested designing the shutter mechanism horizontally without simultaneously revolving rollers and with a simple mirror mechanism in order to significantly reduce the number of parts compared to the Syntax. Of course, this idea had not yet been proved by a design. The 1949 shutter constituted the proof of design. Production of a shutter sample took place in 1949 in the works’ testing building under the supervision of Herbert Broschmann.

In 1950, the project advanced seriously. By then, the “Praktina” working

team (figure 9) had grown to almost 30 people. This team was not only to build the camera and its system but also to develop all the accessories, which were numerous. The significant thing about this team was that it consisted of young people only, with the exception of one or two older design engineers Böhm had called in from Zeiss Ikon. Also, nobody could apply for this team; one was invited into it, and all ideas leading to the famous Praktina system originated within the team. Böhm was the head but everyone was given the chance to intro-



◀ **Outside cover of a 1952 brochure** announcing the first Praktina, which at that time lacked any type or series designation. This very successful design appeared after only about ten years from Böhm's first involvement with the Syntax. **Figure 10**

duce ideas. Consequently, it was a very intensive work, often beyond normal working hours, for example, when some measuring series had to be performed.

As the physicist Dr Gerhard Jehmlich, who later played a decisive role in the development of the Prakticamat (the first German reflex camera with TTL-exposure meter) put it: "There was the sense of a new era about to dawn during those years from 1950 to 1953, which led to faster and more long-term oriented results than were achieved in the West, where they occupied themselves with the old stuff."

The Praktina was first presented to the public in 1952 at the Photokina in Cologne, where the new camera caused quite a sensation (figure 10). However, in Dresden there were turbulences. Zeiss Ikon expressed the reproach that with the Praktina the whole portfolio balance was messed up.

Before the war, there had been scientific departments for different fields at Zeiss Ikon AG, which after the war, especially after the departure of many scientists for the West, had not been re-

established, so that only testing laboratories remained.

Under Böhm's supervision scientific departments, as well as the testing laboratory for functional checkout of the devices, were formed at the Kamera-werkstaetten step by step from a very early point onwards. It began with the formation of the scientific team for optics and photometry, for which Jehmlich was responsible. This team was later joined by departments of applied research for mechanics and electronics, which eventually constituted the scientific basis of the Dresden photographic industry during the era of the large concern Pentacon until 1989.

Böhm always gave special attention to the cooperation of design and technology in order to guarantee production-oriented development from the very beginning. With the Contax S, however, difficulties persisted, due in part to mechanical faults but also because of the high selling price. Böhm remembers being summoned to VEB Zeiss Ikon's Party Secretary Heinz Koerner in 1959 and, in a larger meeting, was asked how far he could take over production of the

Contax S within the larger context of concentration of the Dresden photographic industry. He replied that a takeover of production could only take place if the Praktina's shutter were used, and it would have fit into the beautiful body of the Contax S. Nothing came of this proposal after examination at the VEB Zeiss Ikon. In 1962, the Contax S went out of production and was succeeded by the Praktina IV.

With the successful development of the Praktina from 1949/50 onwards, the systematic building of the VEB Kamera-werkstaetten Niedersedlitz continued by way of a strong design, with more and more Zeiss Ikon designers joining, the first scientific department, the testing laboratory and an efficient technology.

Ten years passed from Böhm's first involvement with the Syntax at Zeiss Ikon to the official presentation of the Praktina at the Leipzig Spring Fair of 1953. It is proof of a remarkable patience and perseverance that Siegfried Böhm stayed with the idea and developed it until he could say: "What the Syntax should have been, we realised with the Praktina." □

Which Way to Turn?

Larry Gubas, Las Vegas, Nevada

*Both Zeiss and Leitz made turn signals for cars
before manufacturers were required
to build them into car bodies at the outset.*

Many who read these pages know that the first use of the trademark "Contax" was not with the famous Zeiss Ikon camera but rather with a series of automobile turn signals in the 1920s. Rolf Fricke has told me that Leitz also was in the business of making such a device, and he sent me a copy of the small catalog in his collection. The device was called a "Leifa," just as the Leitz camera was called a "Leica."

Fricke also offered an article from a German-language magazine that stated that two patents were licensed to Carl Zeiss Jena by a German engineer and businessman, Albert Ebner. These two patents were for an anti-theft device and a directional signal for automobiles. It seems that Ebner was the owner of a Stuttgart firm that specialized in the manufacture of radios and gramophones during the first 30 or more years of the 20th century. There is also an indication that he was a member of the oversight board of Contessa Nettel and a strong personal acquaintance of Dr August Nagel.

I have searched for these Ebner patents without success but found others under his name for closely related devices in his line of business. I also found that Nagel had 35 American patents to his name and, while 31 of them were indeed for items related to photography, the other four were for automobile-related apparatus. Only one of Nagel's patents was prior to his Zeiss Ikon days, but when Contessa Nettel



A 1930 catalog page showing a Contax turn signal. (Original in two colors.)

CARL ZEISS
JENA

ZEISS Contax

(Fabrikat: Zeiss-Ikon A.-G. Contessa-Werk, Stuttgart.)

Den rigtige elektromagnetiske Retningsviser til alle Slags Automobiler.

Retningspil og Stopsignal
er farvet rødgule.



Fig. 1
Contax I
med Pil paa For- og
Bagsiden



Fig. 3
Stoplygte, alene



Fig. 4
**Kombineret Stop- og
Baglygte**



Fig. 2
**Contax III med Pil paa
Forsiden alene, komb.
med Stoplygte.**

Der findes Kørselsretningsvisere af mange forskellige Typer og Konstruktioner. Firmaet Carl Zeiss i Jena har nu optaget Salget af en

elektromagnetisk Retningsviser

som udnytter det elektriske Lysanlæg, der jo nutildags findes i ethvert Automobil, og som i alle Henseender kan betegnes som hensigtssvarende, praktisk og tiltalende.

2

◀ A selection of "Contax" turn signals. This advertisement makes clear that the instruments were made in the Stuttgart Contessa works. (Original in two colors.)

was merged into Zeiss Ikon, all of the firm's patents were ceded to either Zeiss Ikon and/or Carl Zeiss Jena.

Needless to say, information on these directional signals is scarce and difficult to find. However, it is clear from both the Zeiss and Leitz materials that they were a seriously considered business. The Leifa pamphlet (1927) had eight pages, and the Contax (1930) one, six. Neither manufacturer's turn signals were standard equipment; they were rather accessories that required additional installation. Ultimately the products become obsolete because of various laws requiring a turn signal to be part of the body of the car, and the automobile manufacturers soon incorporated them into their car designs.

I found it interesting that the Zeiss printing number on the 1930 catalog was Conta 137, which means that it was the 137th document printed for the business department. It is also clear from one of the pages that the device was manufactured in the Contessa works of Zeiss Ikon although sold by Carl Zeiss Jena. Zeiss already had a distribution network for automobile products, consisting mainly of headlights and other lighting systems, and this network eased the transition to the retail market. I also found an article in *The New York Times* (5 January 1930) about the Automobile Show in New York, wherein it was reported: "The American branch of Carl Zeiss Jena optical house, will exhibit the Contax directional signals, Contal horn rings for steering wheels and headlights with parabolic mirrors."

The name "Contax" for this product came out of the employee suggestion program and was suggested again for the camera. Zeiss was one of the first firms to have an employee suggestion program, and the suggesting party was given the splendid amount of one Reichsmark, which (according to the Leifa material) was worth 10/42 of a US dollar in 1927. □

"LEIFA"



Der neue elektromagnetische
zuverlässige und vornehme
LEITZ-
Fahrtrichtungsanzeiger
für Kraftwagen

August 1927 7 500. 1300. 1420. No. 700.

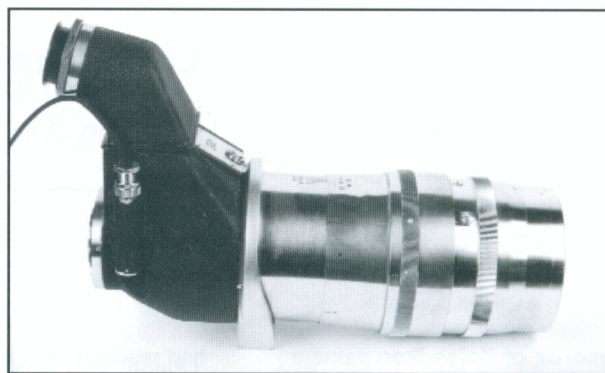
◀ An advertisement from Leitz for their turn signal, called the "Leifa," which was quite similar to the Zeiss "Contax."

A visual history of the Zeiss 300 mm f/4 lenses for 35 mm cameras

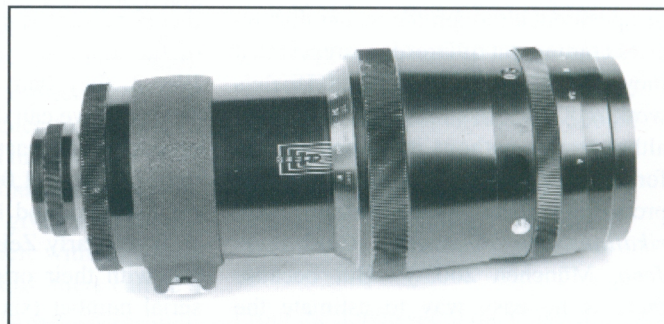
Pierpaolo Ghisetti, Modena, Italy

Starting with Bertele's 1938 design, several versions of these long and relatively fast lenses were made by Carl Zeiss Jena and, later, by Carl Zeiss Oberkochen.

The Carl Zeiss Jena Sonnar, 30 cm f/4 (shown right) was the first lens of this speed and focal length ever made. Designed by Ludwig Bertele and marketed in 1938, it was not shown at the Leipzig Fair until 1940. It has five lenses in three groups and was intended to be used with the Flektoskop reflex housing—as shown here—mounted on a rangefinder Contax. The front lens has a diameter of 72 mm, and the minimum focusing distance was three meters! Total production up to 1945 amounted to 350 units, plus another 155 for Debie and Askania movie cameras. In 1945, 400 of these lenses were coated and have the red "T." This was the first lens to have preselected diaphragm settings.



The second version appeared in 1946, and 653 were made to 1949. Then came 100 for FED cameras in Leica screw mount and 75 with the new Flektometer, as here.



The same lens as the one to the left, but this time with the 42×1 screw mount of the Contax S, the Praktina, and Exactas.



A new design in 1984 for the Praktica B bayonet mount, and with electrical contacts, now had seven lenses in five groups. Much lighter than earlier designs, more than 36,000 were made.



A totally different design came from Carl Zeiss Oberkochen in 1977, with five lenses in five groups. The mount is the Contax/Yashica for the RTS camera. About 10,000 were made.

Zeiss Ikon camera production, 1926 to 1945

Lieutenant Colonel Simon Worsley, Royal Artillery
Mönchengladbach, Germany

The records of Zeiss Ikon camera production for the period 1926 to 1945 have disappeared, although the recent discoveries coming out of Dresden suggest that they may not be lost. Hartmut Thiele's work on Carl Zeiss lens serial numbers, although not without its critics, allows for detailed dating of Carl Zeiss lens production. (See Thiele, Hartmut: *Fabrikationsbuch Photooptik Carl Zeiss Jena*, München 2003.) But because there is no easy way to estimate the number of cameras made during this period, I have attempted to draw some conclusions about Zeiss Ikon camera production for this period by collating Zeiss Ikon camera-body serial numbers

Zeiss Ikon adopted the camera serial-number system started by Hüttig in 1898 and continued by Ica when they took Hüttig over in 1909. The camera serial number (*Fabrikationsnummer*) consisted of normally one letter followed by one to five digits (occasionally the letter follows the number). Hüttig started at A1, and on reaching A99999 they started again at B1 and so on. By 1926, when Zeiss Ikon was formed and adopted this system, the serial-number range

had reached the letter L. By about 1934 Zeiss Ikon had reached the letter Z and therefore started again at the beginning of the alphabet. By the end of World War 2, they had reached the letter O. From this we can deduce that Zeiss Ikon produced at least 3,000,000 cameras (and probably 1,000,000 box cameras) during the period 1926 to 1945.

Some early Zeiss Ikon cameras were left with their original Contessa-Nettel serial number (six digits) or Ernemann serial number (seven digits). From my own observations I would say that only the Zeiss Ikon box cameras (Box-Tengors, Erabox and Baldur) were without serial numbers.

Where the body serial number was stamped depended on the camera type. For example the Ikonta 520/18 had its body serial number stamped in minute figures on the leather covering on the side of the camera, normally hidden by the viewfinder and therefore not visible unless the camera back was opened, while some Contax III 544/24 had their serial number prominently stamped on the rewind knob. The bakelite Simplex 511/2 had its serial number cunningly

stamped on the inside of the leather carrying handle.

Camera production during the war years is hard to judge. However, Zeiss Ikon certainly continued to produce cameras for the civilian market right up to 1945. They even produced a new model, the Tengoflex box camera, which seems to have been made only for export to Sweden.

The end of the war did not see the end of camera production. The Dresden factory, which had been responsible for 35 mm cameras, and the Berlin factory for Ikoflex and box cameras had both been severely damaged and production had stopped. The Stuttgart factory that made the folding cameras (Super Ikontas, Nettars, and Ikontas) had not suffered any major damage and production had only been halted for a few weeks while the French army occupied Stuttgart. On the arrival of the American army, which took over as occupier, production resumed.

Dating by serial numbers

It is possible to find up to four sets of numbers on a Zeiss Ikon camera. They are:

From a study of camera-body serial numbers one can make an estimate of the size of individual batches, and thus the total production figures, of each model.

(This article is a revised and updated version of the author's publication in Zeiss Historica, Fall 1993, page 11.)

1. The Zeiss Ikon camera body serial number (*Fabrikationsnummer*).
2. The Carl Zeiss lens serial number.
3. The Friedrich Deckel Compur shutter serial number.
4. The Zeiss Ikon camera Ordering Number (*Bestellnummer*).

The format of these numbers can be seen from an Ikonta 521/2 in my collection. The camera serial number (F95407) is stamped into the leather covering at the base of the camera back. The Carl Zeiss Tessar 10.5 cm f/3.5 lens number (2100000) is on the front of the lens. The Compur Rapid shutter number (4196176) is on the side of the shutter housing, and the Code Number 521/2 — the *Bestellnummer* or Ordering Number, found on most cameras although generally not the Zeiss Ikon 35 mm cameras — is on the back of the camera.

Although I have limited data on Compur shutter serial numbers it is possible to date the camera approximately using either the Zeiss Ikon body serial

number or the Carl Zeiss lens number. Table 1, overleaf, relates Zeiss Ikon and Carl Zeiss serial numbers to year of production. (The Carl Zeiss lens serial numbers in this table are only estimates. For a more detailed reference to the date of manufacture consult Thiele.)

It should be noted that often a camera body would be made, given a body serial number, and then left without a lens for a year or more. Thus there can be a mismatch between lens and body number and this table should be seen as only a guide. Continuing the example of my Ikonta 521/2, the camera serial number (F95407) would suggest that it was produced in 1937; likewise the Carl Zeiss lens suggests 1937 (Thiele states that this lens was in a batch of 1,000 10.5 cm f/3.5 Tessars finished on 20 July 1937). However this system is not perfect and a number of anomalies exist so it should be taken as a guide only.

Methodology

By collecting Zeiss Ikon serial numbers, one notices groupings of different camera model production. This is best illustrated by an example from 1935:

Y59658	Super Ikonta 530/15
Y59717	Super Ikonta 530/15
Y59823	Super Nettel 1 536/24
Y59923	Super Nettel 1 536/24
Y62517	Super Nettel 1 536/24
Y62744	Super Nettel 1 536/24
Y62833	Contax 1 540/24
Y63166	Contax 1 540/24

From the above set of data I would make the following assumptions for the Super Nettel 1 536/24 production batch illustrated:

Production of this batch started after Y59717 and before or on Y59823. Production stopped on or after Y62744 but before Y62833. Therefore the total production of Super Nettel 1's in this batch could not be greater than 3,116 or less than 2,921. From this I have made the deduction that 3,000 Super Nettel 1's were made in this production batch.

Duplication. There is an unusual discrepancy in 1934, a duplication of serial numbers on a batch of Contax 1 540/24s and of Ikoflex 850/16s. The range of duplication is Y16000 to Y16500. I can

only assume this was an uncharacteristic Zeiss Ikon mistake.

Post-war production with prewar bodies. A batch of Super Ikonta 532/16 bodies in the range of H14500 to H16000 was fitted with post-War Zeiss Opton Tessars (Carl Zeiss serial range 25000 to 26500). The Zeiss Ikon cameras are marked with prewar serial numbers (Hxxxx) while the Opton lens is post-War. I can only assume that this batch of Super Ikonta 532/16 bodies survived the war and were subsequently fitted with post-war optics. There are also many cameras, including the aforementioned Super Ikontas, with asterisks after the serial number (for example, H 15676*). This issue has been discussed at length in recent issues of *Zeiss Historica*; I am definitely in the “asterisk = post-war production” camp, but I accept there is no solid evidence either way.

Multiple lettered serial numbers.

Not all serial numbers contained only one letter. Contax 1 540/24's with serial numbers starting with AU and AV are common, and there are Ikonflex 2 852/16's with serial numbers starting with TD or TG. In all these cases the second letter is the correct serial designator and there is a suggestion that the presence of a second letter, certainly when discussing the Contax 1, indicates that the camera had been returned to Zeiss Ikon for repair. Having seen a number of these cameras I cannot agree with this because there is no visual indication that the second letter was added after the initial serial number was stamped into the camera body. And what is to be made of Contax 1 serial number like AU49890PP?

Letter “W.” Serial numbers starting with “W” were reserved for accessories (Contameters, Sterotars....) and movie cameras such as the Movikon.

Letter “I.” The letter “I” was not used. I have had reported to me cameras with an “I” serial, but further investigation has always proved them to be mis-read, normally T's or E's.

Production totals for the miniatures

Zeiss Ikon miniatures are much sought after and also studied; as such I have a

Table 1

Year	Carl Zeiss lens number	Zeiss Ikon body number
1926	700000 - 750000	L
1927	750000 - 800000	M, N
1928	800000 - 900000	O, P
1929	900000 - 1000000	Q, R
1930	1000000 - 1150000	S, T
1931	1150000 - 1300000	U
1932	1300000 - 1400000	V
1933	1400000 - 1500000	X
1934	1500000 - 1600000	Y
1935	1600000 - 1750000	Y, Z
1936	1750000 - 1950000	A, B, C
1937	1950000 - 2200000	D, E, F
1938	2200000 - 2350000	G, H
1939	2350000 - 2650000	J, K,
1940	---	L, M
1941	2650000 - 2790000	M
1942	2790000 -	M, N
1943		N
1944		N, O
1945		N, O

disproportionately high sample rate for these cameras. From my own database, which contains over 10,250 records, I suggest the production figures shown in Table 2, opposite, for the indicated cameras.

Note that in Table 2 the figures in the third column are firstly the sample size followed by the “confidence level,” the measured production size as deduced from serial numbers (in this example:2,921) measured as a percentage of the maximum possible size of the production batch (in this example: 3,116). Therefore in this example the remarks column would read “4: (94%).”

Accuracy. Obviously the accuracy of the data is dependant on the sample size and my deductions. I am sure that many readers will be able to identify areas where I have over or under estimated production and possibly missed entire production batches.

I ask anyone who can add to my database, and therefore increase the accuracy of the above figures, to send me their data (please note that I am as interested, if not more so, in data on the

less glamorous Nettar, Ikonta etc as much as I am in the Contax, Nettax etc). You can reach me by email at simon_worsley@yahoo.co.uk.

The ideal format for the data is as follows:

Camera serial number: A47460
 Name: Ikonta 520
 Lens: Novar 3.5/7
 Lens serial number: 1310462
 Shutter: Compur
 Shutter serial number: 1229491
 Remarks:
 and :

Camera serial number: AU79717
 Name: Contax 1 540/24
 Lens: Sonnar 2/5
 Lens serial number: 1518448
 Shutter:
 Shutter serial number:
 Remarks:

Note that the Contax 1, with its internal focal-plane shutter, lacks a shutter name and serial number.

Please note that any data offered me is treated in the strictest confidence and is purely for academic research purposes □

Table 2
Production totals for Zeiss Ikon miniature cameras

Contaflex 860/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
X97635 to X97645	(?)	2 (Prototypes?)
Y84001 to Y85500	1,500	60 (50%)
Z42001 to Z43000	1,000	62 (15%)
A46001 to A47000	1,000	72 (88%)
A49501 to A51000	1,500	65 (51%)
A75501 to A76500	1,000	35 (36%)
Total Production:	6,000	

Tenax 1 570/27		
Serial Number Range	Production Estimate	Sample size: (confidence)
H87501 to H97500	10,000	100: (86%)
J78001 to J88000	10,000	68: (99%)
M40001 to M47000	10,000	24: (76%)
Total Production:	30,000	

Tenax 2 580/27		
Serial Number Range	Production Estimate	Sample size: (confidence)
E3001 to E5000	2,000	84: (72%)
H74001 to H77000	3,000	103: (89%)
J88001 to J91500	3,500	94: (62%)
Total Production:	8,500	

Super Nettel 1 536/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
R99841 to R99850	?	1 (Prototype?)
X92001 to X95000	3,000	99: (81%)
Y29501 to Y32500	3,000	83: (97%)
Y59801 to 62800	3,000	77: (96%)
C20001 to C21000	1,000	34: (22%)
F40001 to F41000	1,000	25: (92%)
F46001 to F47500	1,500	51: (53%)
Total Production:	2,500	

Super Nettel 2 537/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
Z43001 to Z44000	1,000	43: (90%)
B22001 to B23000	1,000	56: (66%)
Total Production:	2,000	

Kolibri 523/18		
Serial Number Range	Production Estimate	Sample size: (confidence)
Q68751 to Q69750	1,000	16: (24%)
R72501 to R73500	1,000	12: (61%)
R98801 to R99800	1,000	7: (16%)
S30001 to S33000	3,000	52: (37%)
S46001 to S48000	2,000	31: (55%)
S55001 to S59000	4,000	62: (86%)
S88401 to S89400	1,000	25: (40%)
S91001 to S92000	1,000	14: (68%)
S98001 to S99999	2,000	32: (83%)
T37001 to T38000	1,000	11: (35%)
Total Production:	17,000	

Nettax 538/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
A47501 to A48500	1,000	69: (95%)
B30001 to B31000	1,000	53: (89%)
C86001 to C87000	1,000	48: (83%)
Total Production:	3,000	

Contax 1 540/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
U20001 - U22000	2,000	73: (26%)
AU48501 - AU50000	1,000	34: (54%)
U54001 - U55000	1,000	32: (17%)
AU65001 - AU66000	1,000	37: (45%)
AU75001 - AU81000	2,750	78: (91%)
AV10001 - AV11000	1,000	50: (26%)
AV24001 - AV25000	1,000	39: (32%)
V31001 - V34000	3,500	81: (83%)
V35501 - V38000	2,500	61: (55%)
V89001 - V90000	1,000	31: (38%)
V94001 - X95000	1,000	26: (11%)
X27001 - X29000	2,000	41: (69%)
X31001 - X32000	1,000	28: (70%)
X61501 - X63000	1,500	42: (16%)
X76601 - X77600	1,000	35: (27%)
Y16001 - Y17000	1,000	33: (8%)
Y28751 - Y29750	1,100	34: (95%)
Y32751 - Y37250	4,500	70: (95%)
Y62801 - Y64800	2,000	63: (80%)
Y96001 - Y97000	1,000	37: (80%)
Z25001 - Z29000	3,000	110: (87%)
Z44001 - Z47000	3,000	108: (93%)
Z68501 - Z70000	1,500	44: (72%)
A20001 - A21000	1,000	25: (72%)
Total Production:	41,350	

Contax 2 543/24 & Contax 3 544/24		
Serial Number Range	Production Estimate	Sample size: (confidence)
Z50001 - Z51000	1,000	37: (36%), Contax 2 only
A48501 - A49500	1,000	18: (98%), Contax 2 only
A74501 - A75500	1,000	14: (72%)
B19001 - B22000	3,000	61: (97%)
B31001 - B34000	3,000	60: (93%)
B48001 - B51000	3,000	69: (58%)
B56001 - B64000	8,000	177: (91%)
C10001 - C15000	5,000	111: (75%)
C87001 - C90000	3,000	100: (83%)
D56001 - D60000	3,000	76: (64%)
E5001 - E10000	5,000	119: (94%)
E35001 - E40000	5,000	121: (97%)
F41001 - F46000	5,000	100: (98%)
F72001 - F7800	6,000	111: (83%)
G6001 - G22000	15,000	435: (99%)
J68001 - J78000	10,000	209: (93%)
K53001 - K63000	10,000	215: (95%)
M30001 - M40000	10,000	201: (61%)
O64001 - O65500	1,500	11: (29%)
Total Production:	98,500	

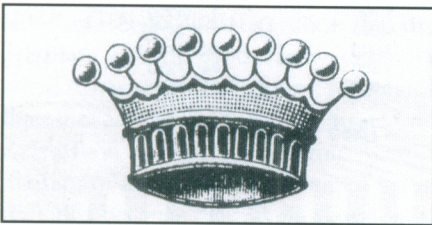
Contessa trademarks

Larry Gubas, Las Vegas, Nevada

The Drexler & Nagel company began to call its cameras "Contessa" from 1909. This firm amalgamated with Nettel in 1919, to form Contessa-Nettel, before joining the Zeiss-Ikon combination in 1926. "Contessa" trademarks evolved accordingly.



The firm of Drexler and Nagel used the trademark "Contessa" for their camera manufacturing firm. This straightforward trademark was used on their early cameras.



The exotic crown was another trademark that they developed but did not carry over into Contessa-Nettel....

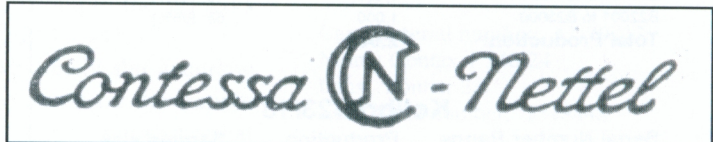
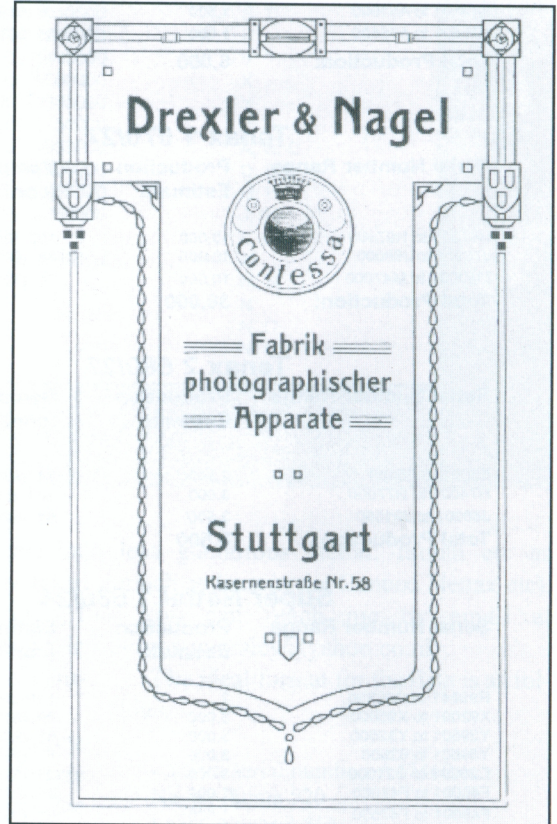


....instead they used a variant of the initials of the firm in exaggerated fashion, with the C like a half moon and the N connected to it.

Another variant was the double circle with the name and initials inside the circles



This elaborate design added the Contessa name and crown to a Drexler & Nagel layout like an old bookplate.



Of the two variants of the written version of the name, this one combined the written and "half moon" logos. The other omitted the graphic but added the word "Cameras" in the same cursive script as in the version above.

Corrections to the Fall 2007 issue

- 1) The caption to figure 4, on page 8 (showing seven Mikrotar lenses) was incomplete. The lenses in the middle row are, left to right, 1 cm f/1.6 prewar chrome in Contax-mount adapter, 60 mm f/4.5 postwar T-coated black, 45 mm f/4.5 postwar T-coated black, 90mm f/6.3 postwar T-coated black.
- 2) On page 21: Las Vegas, Larry Gubas's home town, is of course in Nevada, not New Mexico.

The Editor regrets these errors

Back cover: The text on this display card reads:

- "3 noteworthy new features:
- I. Viewfinder and rangefinder combined, enlarged viewing window
 - II. Combined film advance knob and shutter-speed knob; 1/1250 sec
 - III. Built-in self timer

in the new Contax II."

It is worth noting that the Contax illustrated —

- 1) is an export model, scaled in feet
- 2) has clearly visible serial numbers for both lens and camera body, placing it as one of the first series
- 3) has the 100/200 shutter speeds of the early series, and vertical knurling on the advance knob
- 4) has that famous "Zeiss Ikon" logo, suggesting that the presentation is more than an airbrush artist's addition to an otherwise banal Contax II (and supporting Peter Hennig's adventure reported in *Zeiss Historica*, Fall 2004, page 15).

— Charles Barringer



3 wesentliche Neuerungen:

- I. Vereint: Sucher und Entfernungsmesser. Vergrößertes Bildfenster.
- II. Vereint: Aufzugsknopf und Auslöser. $\frac{1}{1250}$ Sek.
- III. Eingebaut: Selbstauslöser bei der neuen

Contax II

