ZEISS HISTORICA

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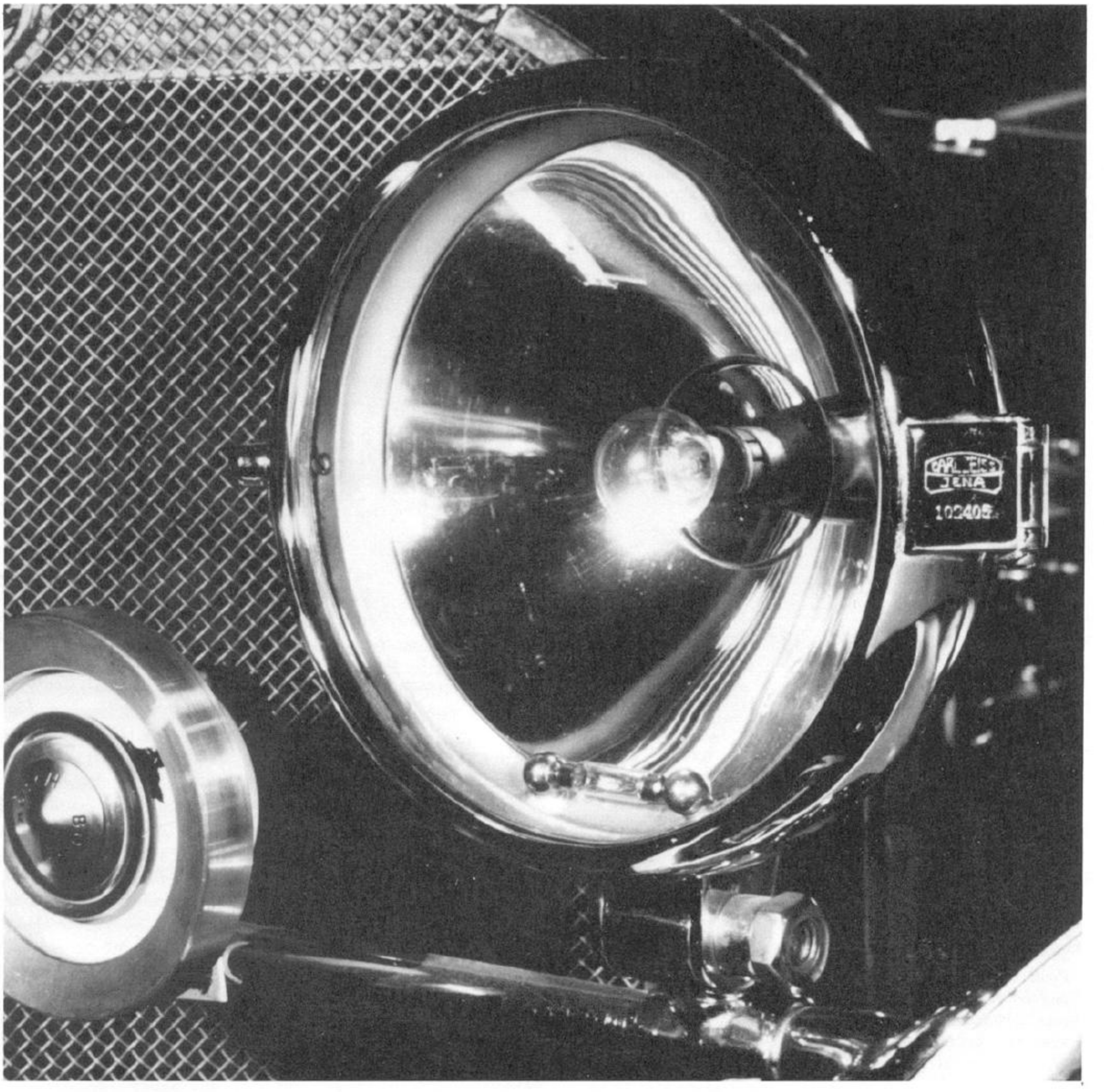

The Zeiss Historica Society of America is an educational, non-profit society dedicated to the study and exchange of information on the history of the Carl Zeiss optical company and affiliates, its people and products from 1846 to the present.

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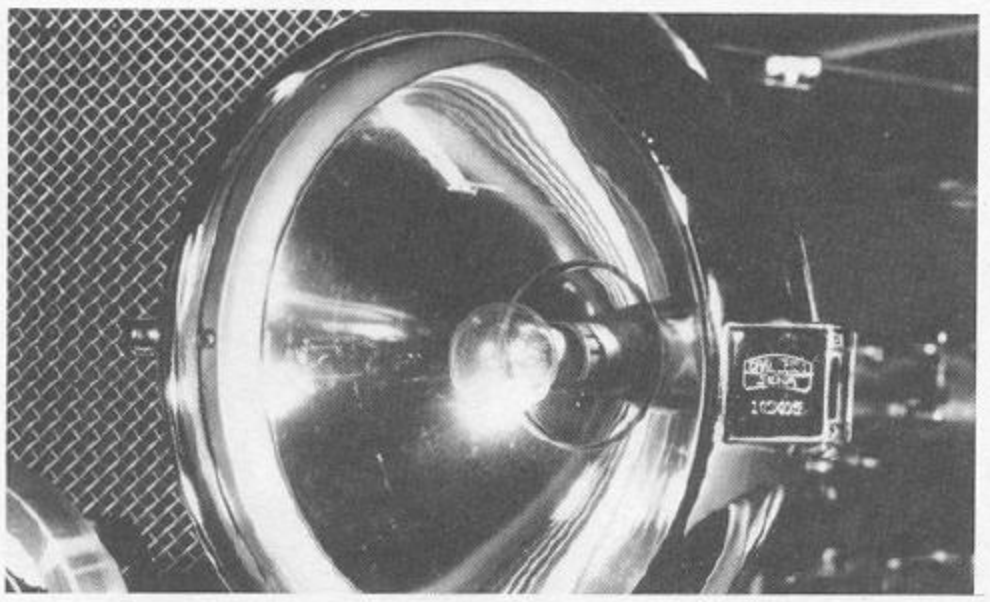

ON THE COVERS

FRONT COVER: Zeiss electric headlight on 1929 Mercedes Type WS 06 SS 710. Electrical system is 12-volt.
BACK COVER: Pages from the 1933 catalog of Asanuma & Company in Tokyo.

ILLUSTRATION SOURCES

Front cover, Museum of the Foundation Pierre Gianadda, Martigny, Switzerland. • Back cover, Nick Grossman. • Tenzing on Everest, Photo © Royal Geographical Society. • Banknote article, H.-J. Kuc and Zeiss Oberkochen. • Wehran interview, Nick Grossman (Wehran portrait) and H.-J. Kuc. • Zeiss Ikon Serial Numbers, Simon Worsley. • Zeiss Headlights, Museum of the Fondation Pierre Gianadda, Wolfgang Pfeiffer, Gerhard Mirsching. • Lichtstrahlen, Greg Bedore, Maurice Zubatkin.

1994 MEETING TO BE HELD IN HAMBURG

The Society's 1994 Annual Meeting will be held in Hamburg, Germany in the late summer or early fall of 1994, hosted by noted Contax historian and member Hans-Juergen Kuc. Exact dates and arrangements will be announced as soon as possible.

PRESIDENT'S LETTER

The immediate postwar period in Jena and Dresden has always fascinated me. Cameras and lenses were put together from the sparse materials and know-how that were available, while entire factories and their contents were being shipped out to east and west per the old refrain "to the victor belong the spoils."

Normally, there is almost no documentation about this era. Lately, I have been overwhelmed by three accounts, from three vantage points. It would be premature to say that the clouds of ignorance have been completely dispelled, but each report contributes to this goal.

The June '93 Camera Shopper* reprints an article by Edward K. Kaprelian, an optical engineer, consultant and honorary member of our Society, who has addressed our meetings on two occasions. (Without going into Ed's biography at this point, I will add ZHSA's best wishes on his recent 80th birthday.) He details the saga of the Zeiss factory's photographic lens collection — some 2000 pieces, including samples of the production as well as each of the experimental (Versuchs) lenses created. Requisitioned by the US Army in 1945, this unified body was moved, lost, found, studied, dispersed, and finally lost forever. Ed speaks with particular authority on the subject as he was in charge of several phases of this bizarre adventure.

Another article in the same issue of Camera Shopper contains an interview by Bruce Pick with a Dr. (then Lieutenant) Ginsburg, who was in Jena during the period in question. This vignette offers a different but corroborating version of the facts of that brief but critical period in the history of Zeiss.

Also from his experience of that period is Lt. Col. Hubert Zemke's recent book entitled Zemke's Stalag (Smithsonian Institution Press). He was a senior Allied officer in Jena in May 1945, and it is strange that Zemke is not mentioned by Dr. Ginsburg. Perhaps further investigation is warranted. (Only the last chapter is relevant to ZHSA.)

To reach a so-called true history of any given place and time is best (although not solely) told by those who were there. Primary sources are unique. Persons with direct experience in Carl Zeiss, its affiliates and dealers, are still around, but getting older. And those who worked with Zeiss Ikon as a camera manufacturer have a minimum of 20 years separation. I, therefore, ask anyone who knows someone who worked at or with a Zeiss company (or with Zeiss Ikon equipment) to obtain their recollections. Our Society will help; please let me know.

Charles Barringer, Jr.

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REMINISCENCES OF ZEISS IKON WITH WOLF WEHRAN

Hans-Juergen Kuc, Hamburg, Germany

During the thirteen years I have known Wolf Wehran I have met him several times and have always had questions for him. His information supplied many articles I've written in various publications.

For sixteen years, Mr. Wehran was Director of Public Relations for Zeiss Ikon in Stuttgart, and knows the history of this company like no other. Also he has a distinguished record

Wolf Wehran at the Society's 1992 meeting in Oberkochen.

in general photographic history. Insiders will remember with much pleasure his magazine " Photo Boerse," and his columns published in various photographic journals. It is not surprising, therefore, that he is highly regarded and popular among Zeiss collectors and historians.

If one is lucky to meet him, one will be constantly amazed. He willingly talks of his time with Zeiss Ikon, competently and entertainingly. At the Zeiss Historica Society meeting in Oberkochen in 1992, participants will remember always his brilliant lecture.

Today, Mr. Wehran is a Public Relations representative for Carl Zeiss. Our last meeting took place in Oberkochen in the spring of 1993. I used this opportunity for an extensive interview, which I am pleased to present to the readers of the Zeiss Historica Journal.

HJK: Mr. Wehran, besides working as PR manager, you have distinguished yourself as an expert in the history of photography. Could you, in a few words, characterize the course of history?

WW: Certainly. The French invented photography, the English developed it further, the Germans perfected it, the Americans popularized it, and the Japanese commercialized it.

HJK: Before we go to your work with Zeiss Ikon, I would like to know what you did before that and how you came to work for Zeiss Ikon.

WW: After the war I first became a member of the Team for Scientific Photography. In 1952 I joined Linhof in Munich, where, among other things, I was able to launch the magazine "Grossbildtechnik" with Joachim Giebelhausen. Later, this was renamed "Photo Technik International." In 1956, Wilhelm Wohlfahrt, the Zeiss Ikon sales director, asked me to come to Stuttgart and organize the PR department. I started work on April 1, 1956.

HJK: During a previous meeting in Stuttgart you jokingly said to me that the most beautiful street in Stuttgart was the one going to Munich. Did the move to Stuttgart hold disadvantages for you?

WW: Not at all, my new job was too attractive for that. It's just that I had become very fond of Munich.

HJK: Even before 1956, Zeiss Ikon had a well-functioning publicity department. What was the new PR department supposed to accomplish?

WW: It's true that the field of consumer advertising was pretty well covered. But Zeiss Ikon had not developed any public relations.

HJK: What changed?

WW: Well, after the war, a so-called buyer's market was prevalent in Germany. The backlog of consumer demand was greater than the capacity for manufacturer supply. This meant that manufacturers could produce whatever they really wanted; the consumer was grateful for almost everything. This is also shown by the amount of small and hole-in-the-wall manufacturers in the fifties.

From the mid-fifties on, to consider consumer desires became increasingly important. And for this, one needed marketing and public relations instruments. Part of these are market research, efficient product development and not least the cultivation of worldwide contacts with specialized journalists.

Contarex I with prototype 50mm f4 S-Planar.

HJK: Were these targets as clearly defined when you started work?

WW: No. On the contrary, one could sense the superior attitude of the market leader everywhere. Mr. Wohlfahrt's first question was: "Are you for stereoscopy?" At that point, the question meant nothing to me, at all. It was an indication of the preoccupation with technology the company had been cultivating for far too long. The question applied to the Stereotar C for the Contax. Although this apparatus was excellent concerning development and execution, it was not possible to make money with it.

HJK: How did you manage to build up the public relations work for Zeiss Ikon so successfully in such a relatively short time?

WW: Zeiss Ikon was a universally known company of excellent reputation. That was the best possible prerequisite; the field only needed tilling. As a sideline, I did public relations work for the Association for the Promotion of German Camera Exports (organ, "Camera News of West Germany"). The contacts resulting from this were also very useful for Zeiss Ikon.

HJK: Let's talk about pleasant times. What do you first remember when you think of the positive side of your work for Zeiss Ikon?

WW: The introduction of the Contarex. The Contarex was possibly the most solid camera ever built. It was introduced at Photokina 1958 and distributed as of 1960.

HJK: Did this delay have negative effects?

WW: No. The innovations inherent in the Contarex were so sensational at that time that the delay was considered justified.

HJK: How was it possible that such complicated cameras as Contax, Contaflex and Contarex worked with such a degree of reliability?

WW: To a great extent, this was due to large-scale series production, one of whose side-effects is always a very low error rate.

HJK: The term "large-scale series production" could hardly be applied to the Contarex. How was such constant quality ensured here?

WW: Well, a particularly close-meshed quality protection system was developed specifically for the Contarex. After each operation the cameras underwent a thorough examination, so that mavericks were practically impossible. This lavish system was one of the reasons for the delayed initial distribution. Special care went into the production of the lens mounts, which were also produced by Zeiss Ikon. The helical barrel was literally ground by hand — a lengthy process which, compared with today's methods of production, would be inconceivable and prohibitively expensive.

HJK: And did the bulky Contarex really receive only praise?

WW: No. The American journalist Bob Schwalberg was one of the first who expressed exactly what the skeptics felt when he said: "This is the smallest SLR camera in the 6 x 6 format I have ever seen."

HJK: How was business with the interchangeable film magazines?

WW: It was not a terribly remunerative business, particularly as the development had been very expensive. The magazines for Contaflex and Contarex were bought mainly by organizations, in order to have one magazine each for several employees or for different types of film. And only a few of the professional photographers working with these cameras bought more than one magazine for assignments. Many preferred working with additional camera bodies.

A very successful postwar miniature: the Contessa.

HJK: Let's go back to the initial stages of Zeiss Ikon AG Stuttgart. Was there something like a father of the Contax IIa, like Dr. Kueppenbender for the Contax I?

WW: No. The camera was developed by a team. Edgar Sauer was head of the construction department, and director Heinrich

Eyth was responsible for the supervision of development and production. He was very much concerned about precision and order and scrutinized the works daily. His successor was Walter Traut (as of October 10, 1956).

HJK: Contax experts know that a Contax IV was developed on a trial basis. How many specimens of this were produced?

WW: Three test models were constructed.

HJK: Was the possibility of converting the Contax IIa into a IIIa often used?

WW: No. Only very little.

HJK: There is supposed to have been a pinhole-lens for the Contax IIa. Can you tell me something about this lens?

WW: This was in the early fifties, before the Carl Zeiss Biogon 21 mm came on the market. The pinhole-lens was developed by Zeiss Ikon for German Federal Railways and served the purpose of examining different angles of view in engine drivers' cabins.

Dr. Hans Ruehle, head of the technical research and development laboratory at Zeiss Ikon, designed this lens, of which approximately five were produced. In this laboratory, our own and outside developments were tested, including the lenses from the parent company Carl Zeiss, as well as products from competitive companies. The pinhole-lens, by the way, had an angular coverage of approximately 100°.

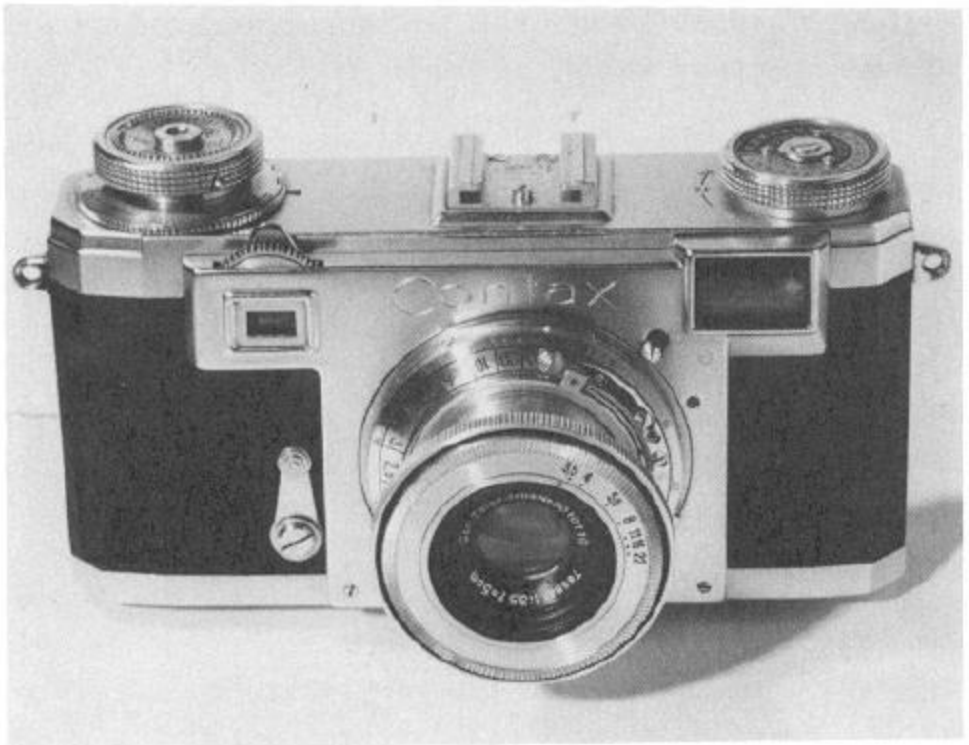
HJK: Why hadn't Zeiss Ikon in Stuttgart produced a single-lens reflex camera earlier, similar to the Exakta?

WW: This problem had already presented itself just after the war. Even then there were signs that the future would belong to the single-lens reflex camera. The Exakta was already quite successful, and Zeiss Ikon AG Stuttgart had developed several single-lens reflex cameras which were awaiting realization. But Dr. Kueppenbender, managing director of Carl Zeiss and member of the board of Zeiss Ikon AG, pushed the Contax IIa through. He saw a greater chance for the concept of high quality rangefinder cameras than for the reflex principle. This was a misjudgment.

Later, he supported the takeover of the shutter manufacturers Deckel (Compur) and Gauthier (Prontor) by Carl Zeiss. In order to ensure sufficient sales for the new subsidiaries, he stepped up the introduction of the single-lens Contaflex and the Bessamatic. The Contaflex had been developed by Zeiss Ikon AG; the Bessamatic was a product of Voigtlaender AG. Since 1956 the latter also belonged to the Zeiss concern.

On the one hand, the decision in favor of single-lens reflex cameras with leaf shutters ensured good sales for the concern's own companies. On the other hand, competitors like Ihagee, VEB Pentacon and Wirgin were able to expand unhindered with their focal plane shutter cameras Exakta, Pentacon and Edixa, not to mention the model offensive from Japan, which came later. When, after the introduction of the Leica M3 in 1954, the Contax also lost ground heavily, the model policy of Zeiss Ikon AG was once more severely questioned.

Contarex I with 40-120mm Vario-Sonnar f2.8 lens.



Contax IIa with very early postwar lens: uncoated 5cm f3.5 Tessar without the usual black circle on the aperture ring.

HJK: Wasn't the Contarex already developed at this point?

WW: That is correct, but it did not become available until 1960. Incidentally, the Contarex did replace the Contax, but it was not an alternative to the less expensive single-lens reflex cameras from our competitors.

HJK: Zeiss Ikon produced many other 35mm cameras. How important were those?

WW: Among them were some extraordinarily good cameras. The Contessa, for instance, was a magnificent and very successful 35mm camera. Unfortunately, its production had to be discontinued far too soon, because the right leaf shutter was no longer available. Concerning the rest of the rangefinder cameras, Zeiss Ikon had bogged down early on. The range of models was just too big and confusing. Take the Contina III with interchangeable front elements from the Pantar system. Something which may seem interesting to today's collector, was at that time one of the many superfluous products which were not viable.

Another failure was the Ikonette, made completely from synthetics and produced in the factory in Berlin. This camera was neither safe to operate nor was it geared to market requirements — a complete embarrassment, expressive of the Box-Tengor-mentality. After the factory visit I said to director Henscheid, then responsible for the Berlin factory: "If the Japanese could see this, they would say that they need not be afraid of the competition." It was not easy for me to do PR work for this product.

HJK: That is understandable. Were you completely on your own in your assessment of the corporate strategy?

WW: Not at all. A further problem at Zeiss Ikon were the obsolete methods of production, which, of course, would be obvious to an informed visitor. After visiting the plant in Stuttgart, a British journalist once asked me: "How can you make a profit with such production methods?" It was difficult to answer, like sailing against the wind; but I managed to run free.

HJK: What about the profit situation on the whole? When did Zeiss Ikon start to go downhill?

WW: From 1958 the company realized no profit. Although turnover would be increased several times during the next few years, this did not influence the continuing absence of profit. And early in 1960 the absolute rate of turnover also fell.

HJK: You already mentioned Dr. Kueppenbender's effectiveness in favor of the Contax IIa and in cameras with leaf shutters. Were there other decisions which carried his handwriting?

WW: Already in 1960 Voigtlaender had developed a single-lens reflex camera with TTL metering. The camera was ready to go into production and already had a name: Bessaflex. Dr. Kueppenbender stopped this project in order to save the Zeiss Ikon models Contaflex and Contarex.

What was incomprehensible was that he would not admit the decreasing market importance of Zeiss Ikon cameras in the sixties. Once, when we showed him the market-dominating products of the competition in order to bring about the desperately needed change in model and price policy, he took the view that the name "Zeiss" justified higher prices despite outdated technology.

Of course, there were also positive decisions for which Dr. Kueppenbender was responsible. The development of the Contarex SE, for example, can be attributed to his initiative.

HJK: How did you manage to sell these partly involved products convincingly?

WW: With commitment, and sometimes with humor. For example, when I introduced the Contaflex Super BC in London, a British journalist asked me why the camera did not have a quick-return mirror. I answered that one could compare it to a good Scotch whiskey. If one didn't know it, one didn't miss it.

HJK: A disarming answer. Was there no chance of things taking a turn for the better?

WW: In the mid-sixties a team was formed at Zeiss Ikon, of which I was a member. Typically, the group called itself MUT (Markt und Technik) (MUT- courage) and they had made it their business to intensively watch the competition and give recommendations to the board concerning new products that should be developed. Unfortunately, only a third of our suggestions stood any chance of even being taken up, to say nothing of being realized. One of the problems was that the members of the board responsible for sales frequently changed. Our possibilities in this direction, therefore, were very limited.

HJK: Didn't the founding of the Zeiss Ikon Voigtlaender Marketing GmbH in 1966 contribute to an easing up of the situation?

WW: No. Merely a merry-go-round of executives and production sites was initiated. On instruction of Dr. Kueppenbender it was decided to concentrate the production of rangefinder cameras at Voigtlaender in Braunschweig and that of SLR cameras at Zeiss Ikon in Stuttgart.

A product line simplification would have been far more important at this moment. There were far too many cameras and far too many different lens mounts. Imagine, forty cameras altogether were competing with each other! But a change was made far too late.

HJK: So one could say — exaggeratedly — that the chaos was merely administered?

WW: One could almost say that. Very disadvantageous during the last years was the strong fluctuation of members of the board. The last technical director was Dr. Roesner. He came from Carl Zeiss and was technically able, but inexperienced in things photographic. One day he came to me and in all seriousness presented "the solution": A medium-sized format camera with a fixed lens and sliding masks for image field limitation. This supposedly brilliant idea was anything but suitable for resolving the company's problems.

HJK: Actually how heavy were the losses?

WW: Well, in 1966 the losses amounted to merely 2 million DM; in 1967 they had come up to 6.6 million; and in 1970 a loss of 10 million DM had to be coped with. Sales trends didn't look any better. At the best times, i.e. in the mid-fifties, the companies Zeiss Ikon and Voigtlaender had a joint turnover of 200 million DM. In 1970, Zeiss Ikon Voigtlaender turned over a mere 80 million DM. These figures also explain why there was no capital for the modernization of the production plants.

HJK: What effect did the Japanese export offensive have on the camera market?

WW: A dramatic one. In the business year 1964/65 alone, the export of Japanese SLR cameras recorded a growth of 65%. The export of German SLR cameras, on the other hand, grew by only 3%. Rangefinder cameras presented a similar picture. This trend hit the German market leader particularly hard.

HJK: What were the reasons — reduced to a common denominator — for the decline of Zeiss Ikon and Zeiss Ikon Voigtlaender?

WW: 1. Very early on, the wrong decisions were taken, for instance the decision in favor of Contax rangefinder cameras and SLR cameras with leaf shutters.

2. The product policy; there were too many different rangefinder cameras for too long. Moreover, in the final stages there were seven single-lens reflex cameras with five different lens mounts. The Icarex with screw-in mount came too late by at least five years.

3. Modernization of the production plants was neglected (a mistake which many other German manufacturers made as well, by the way). This meant that production was too expensive.

4. The change from buyer's to producer's market was missed. Predominant was the motto "we decide what's good and right for the consumer." The price-performance ratio of the cameras was not right anymore.

5. The ambition to develop everything in-house was too costly. Example: electronic components.

HJK: The end is known. But how was it possible that such a big concern could disappear as suddenly as Atlantis? How did that happen?

WW: Mainly with money. The closure of Zeiss Ikon Voigtlaender cost the parent company Carl Zeiss 160 million DM. The social component was particularly painful. At that time there was still a large stock of cameras as well as accessories and spare parts. The current products could still be sold. Other

Contax IIIa with 50mm f1.5 Sonnar and original factory tag.

cameras, like the Hologon and the Contarex professional, had to be aggressively promoted.

HJK: What happened to the single-lens reflex camera SL 725? Wasn't this just a step away from introduction on the market?

WW: Not quite. Some development work still had to be done. Dacora/Weber in Nuernberg intended to complete the project, but expected Zeiss to pay for the development costs. Zeiss refused, although a complete range of lenses was already available.

HJK: Wasn't it a strain on you to work for Zeiss Ikon until the end, despite all the wrong decisions and setbacks?

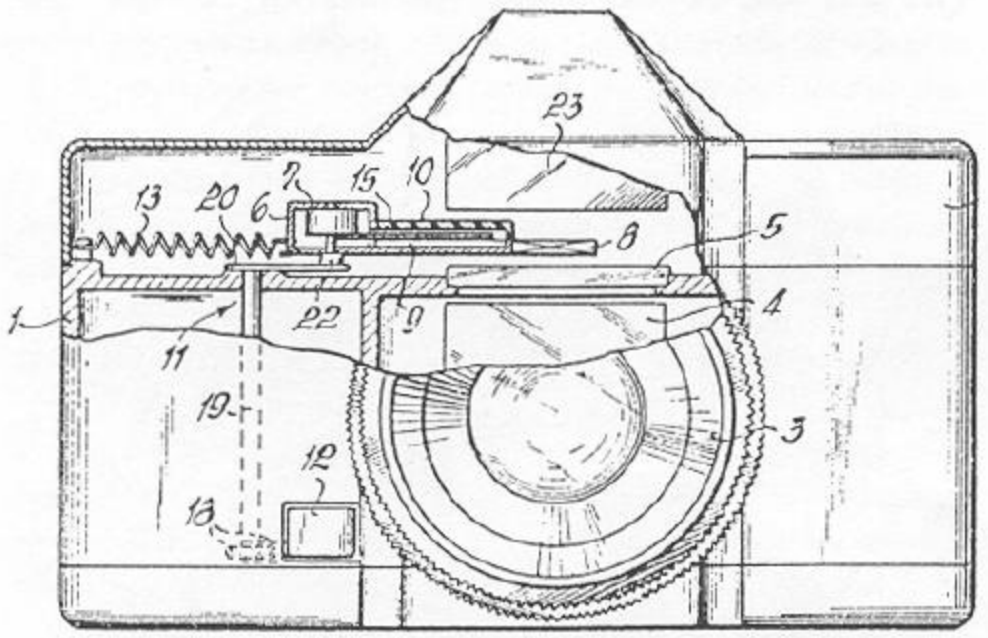
WW: Admittedly, it was not always easy. But over the years I developed a strong loyalty to the company, and, as is well-known, this is especially important in hard times.

HJK: After the end of Zeiss Ikon you were offered a position in the parent company, Carl Zeiss. For which products were you responsible there?

WW: For photo-lenses (for Arri, Hasselblad and Rollei, and later also for Yashica/Contax) as well as binoculars and telescopic sights.

HJK: Wasn't there, for a long time, a lot of competition in this area with the VEB Carl Zeiss Jena?

WW: Oh yes. In countries like Great Britain, Switzerland and Spain, both concerns were allowed, by the London Agreement, to use the name Zeiss. This, of course, often led to confusion and irritation. A dealer in Spain once told me that a representative for Zeiss binoculars from the then GDR had offered him his products. After having thoroughly examined the glasses, and just as thoroughly compared prices, the dealer asked why the binoculars were so much cheaper than the West German products with the same name. The representative answered: "Well, that's the extra charge for capitalism."



Patent drawings for the Voigtlaender Bessaflex. This TTL-equipped SLR camera was never produced.

HJK: Some years ago you told me the story of the fur coat. Would you refresh my bad memory?

WW: With pleasure. In the early eighties the turnover from binoculars wasn't satisfactory in France. I therefore invited specialized journalists to a press conference. We organized a picnic in a relaxed atmosphere and every journalist got a pair of binoculars. They all said thank you nicely, looked through them briefly and put them aside in order to enjoy the delicious food. Suddenly, at some distance, a photographer appeared with his model. The young lady, who posed for her enthusiastic photographer, wore an open fur coat and under this — nothing. Suddenly, the binoculars were put to use, and a few weeks later all French trade magazines published very positive reports on the excellent binoculars from Oberkochen.

HJK: Surely there were additional problems to master as well.

WW: In the mid-seventies Hasselblad considered introducing a second, cheaper range of lenses beside the established Zeiss lenses. These lenses were to be supplied by Nikon. I learned of these plans in good time and obtained backing from management.

At last the deciding conference between Zeiss and Hasselblad took place. A spokesman for the Swedish concern conveyed their intentions and doubtless counted on Zeiss being sympathetic to these. I answered: "If you sell only one lens of the planned series, I shall recommend to my management that we sell the Zeiss lenses for Hasselblad cameras on the open market."

There followed the most quiet moment I had ever experienced in this conference room. One could have heard a pin drop. The problem was solved.

HJK: Dear Mr. Wehran, I am sure we could continue this conversation for a few days without becoming bored. For the moment, thank you for this insightful talk, and my very best wishes for your good health and contentment in the future. I look forward to meeting with you another time.

Further Journal articles on postwar Zeiss Ikon:

ISSUE	*TITLE*	*AUTHOR*
Spring 1981	*Zeiss Ikon Contaflex TLR*	*M. Kibbey*
Fall 1981	*Zeiss Ikon Stereo Equipment*	*G. Pilecki*
Fall 1983	*Tenax I and its Successors*	*L. Gubas*
Spring 1986	*Visit to Zeiss Ikon in Stuttgart*	*L. Gubas*
Fall 1986	*Zeiss Photographic Firsts*	*L. Gubas*
Spring 1991	*ZI's First Postwar Camera Family*	*L. Gubas*

Also available from the Society are Nicholas Grossman's notes of Wolf Webran's informative presentation at the Zeiss Historica meeting in Oberkochen, on September 13, 1992. Please send your request to Maurice Zubatkin, Zeiss Historic Society (address on masthead).

ZEISS ON EVEREST

Marc James Small, Roanoke, Virginia

A certain German camera manufacturer of somewhat more than average note has recently done much to advertise the use of its products on Mount Everest during the Canadian Expedition of 1982 and subsequent climbs. However, they are latecomers to this ultimate mountain challenge. Zeiss was there first by some six decades.

The greatest Mount Everest picture is the shot of Tenzing standing at the summit, holding aloft his ice ax with its four flags proudly waving in the brutal gales which sweep the top of the world's highest peak. I had originally believed that this was taken with a Contax II and a 35mm f2.8 Biogon carried by Sir Edmund Hillary. Given the choice of cameras available in 1953, the expedition organizers turned with no apparent hesitation to the world's finest optics and the world's finest cameras.

When I wrote Sir Edmund however, he graciously informed me that the actual camera he used was a prewar Retina equipped with a Zeiss Tessar 5cm f3.5 lens. Two Retinas used this lens. One of them, the Retina II (Stuttgart Type 12), had a double exposure lock. Since Sir Edmund advised me that double exposures were a concern of his on his climb, his would more probably have been the earlier Retina (Stuttgart Type 126) manufactured between March 1936, and October 1937.

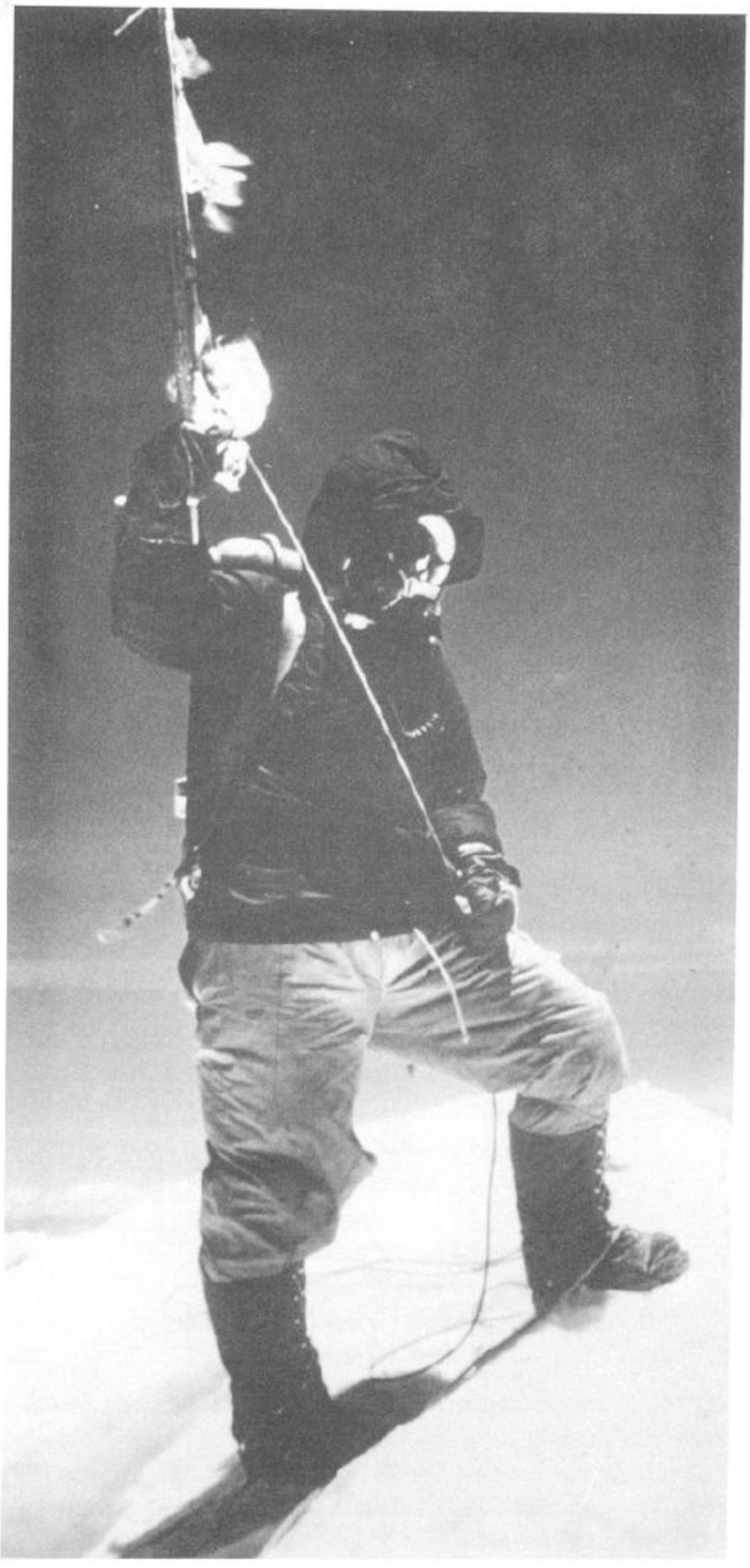
Mountaineers are in many cases fine writers and some are even competent photographers. But there is a frustrating lack of documentation on photographic gear of the upward struggles of the human race.

Lord Hunt, in his epic "Conquest of Everest," avoids mention of photographic specifics, as does Sir Edmund in his chapter on the actual ascent of the main peak.

Even in the exhaustive six-page list of suppliers, the photographic sources include only Agfa, Ilford, and Kodak — and, interestingly, "Time and Life Magazines, U.S.A. — Contax cameras, Biogon lenses."

Among the pictures of the expedition members is one of Alfred Gregory, one of the climbers, which shows him using a tripod-mounted Contax II, 135mm f4 Sonnar lens, and Zeiss 436/170 viewfinder. These are the bare clues within the book as to the make and model of the photographic gear used on this sterling trek.

Forty years earlier, the British had mounted the first three expeditions to attempt to conquer Mount Everest. On the second and third of these, a British Army officer with a bent for cinematography, Captain John Noel, headed up the photographic efforts. Although Noel's main work was with



Tenzing on the summit, shot with Hillary's Retina.

movie cameras equipped with extremely long telephoto lenses, the scanty evidence surviving indicates that for the 1922 and 1924 expeditions he "standardized" the still-picture equipment on the Vest Pocket Kodak. This lightweight, reliable, and effective performer probably was the best available camera for the climbers to carry.

The Vest Pocket Autographic Kodak Special of the period was equipped with a ball bearing shutter, preferable to less rugged designs for the frigid cold of the North Slope. It probably made eight 4cm by 6.5cm pictures on 127 film, which was then the world standard for "minature photography." This camera proudly bore an f6.9 Zeiss Anastigmat lens manufactured under license by Kodak.

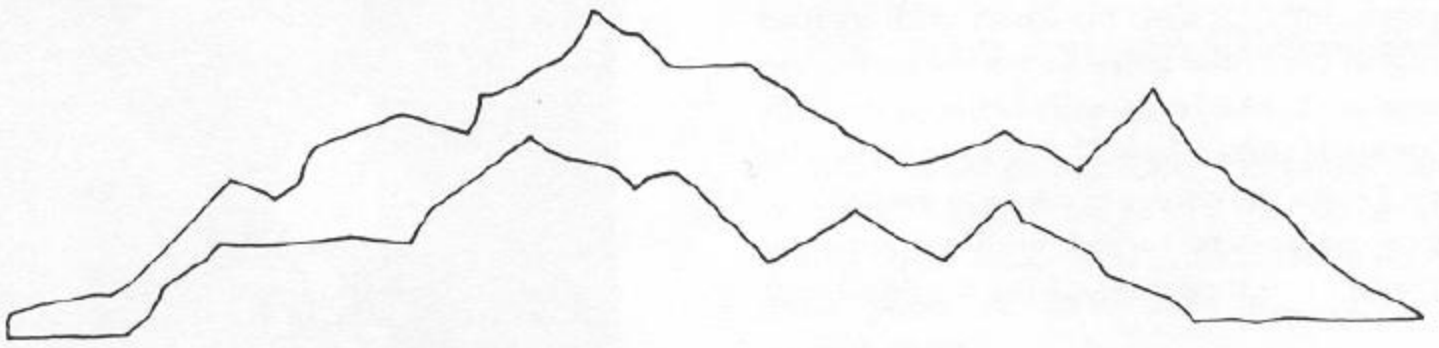
I suspect that this was the camera used to make the final photograph of Mallory and Irvine as they set off on their fatal ascent in 1924. It was certainly the camera carried by them on that climb. If Mallory reached the summit, as looks eminently possible in light of current knowledge, then he would have documented that feat with pictures through a Zeiss lens some thirty years before Hillary took his arresting shot of Tenzing.

Unfortunately, any photographic proof of a 1924 conquest of Everest remains in the camera, which can only be presumed to be lost with Mallory's body either on the North Slope itself or on the Rongbuk Glacier some 8000 feet below.

In 1962, an American party led by the grandson of Woodrow Wilson made a sudden, daring, and resourceful dart onto the then-forbidden North Slope of Everest on the Tibetan side. They ascended to within 4000 feet of the summit. With the final ascent party went a Contax IIIa with 50mm and 85mm lenses, the latter probably an f4 Triotar. A Contessa remained behind at their camp.

On a final note, the successful 1972 American party used Pentax cameras for the most part, although the climbers carried Rollei 35s with them. The Pentaxes used the 42mm thread-mount developed by Zeiss immediately before World War II, which was used by Zeiss East in the Contax S, the first successful SLR. The Rollei 35s had that wonderfully sharp Tessar lens designed by Zeiss.

So, Zeiss has been on Everest from the beginning. When you see one of those ads from that Brand X camera maker, just think of Mallory and Irvine, of Hillary and Tenzing, and of all those others, and keep things in perspective. The world's highest peak, after all, deserves the world's finest cameras and optics. Zeiss has been there, North Slope and South, Mallory route, Norton route, on the North Col, on the South, from the very beginning. Which, of course, is how it should be.



HIMALAYAN TRUST

CHAIRMAN:
SIR EDMUND HILLARY,
278A REMUERA ROAD,
AUCKLAND 5, NEW ZEALAND.
TELEPHONE: 520-3169
FAX: 64-9-520-7847

24th February, 1993.

Marc James Small,
Post Office Box 2901,
Roanoke Virginia 24001-2901
U.S.A.

Dear Mr. Small,

On Everest my camera was fairly ancient even in those days. It was a Kodak Retina Camera (Made in Germany) Bellows type, marked "Compur". It had a Zeiss Tessar lens 1:3.5 f=5cms.

It was possible to double expose. When I was high on Everest I sometimes could not remember if I had wound on so I'd wind on again. So my summit film which was very successful had several blank frames.

Yours sincerely,

E. P. Hillary

Sir Edmund Hillary.

Sir Edmund Hillary's letter to the author.

ZEISS IKON SERIAL NUMBERS, 1926 TO 1939

Simon Worsley, Reading, England

Zeiss Ikon production figures for the period 1926 to 1939 were lost during World War II. Therefore there is no easy way to estimate the number of cameras they produced. By collecting Zeiss Ikon camera body serial numbers I have attempted to draw some conclusions about Zeiss Ikon camera production during this period.

Zeiss Ikon adopted the camera serial number system started by Huettig in 1898 and continued by Ica when they took Huettig over in 1909. Normally, the serial number consisted of one letter followed by one to five digits (occasionally the letter follows the number).

Huettig started at A1. 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 1934 Zeiss Ikon had reached the letter "Z" and therefore started again at the beginning of the alphabet. By 1939 they had reached the letter "M". From this we can deduce that Zeiss Ikon produced over 3,000,000 cameras during the period of 1926 to 1939.

Some early Zeiss Ikon cameras were left with their original Contessa-Nettel serial numbers (six digit) or Ernemann serial numbers (seven digit). There were a few cameras that were not given numbers at all. From my own observations I would say that no Zeiss Ikon box cameras (Box-Tengor, Erabox and Baldur) nor the bakelite Simplex 511/2 were given serial numbers.

Where the body serial number was stamped depended on the camera type. For example, the Baby Ikonta 520/18 had its serial number stamped in minute figures on the leather covering on the side of the camera, where it was normally hidden by the viewfinder. On the other hand, the Contax III 544/24 can be found with its serial number prominently stamped on the rewind knob.

Dating Cameras by Their Serial Number

It is possible to find up to three serial numbers on a Zeiss Ikon camera. The three numbers are the body serial number, the Zeiss lens number, and the Compur shutter serial number.

Although I have limited data on Compur shutter numbers, it is possible to date a camera using either the Zeiss Ikon body number or the Carl Zeiss lens number. The following table matches Zeiss Ikon/Carl Zeiss serial numbers to year of production. It should be noted that often a camera body would be made, a body serial number allocated to it and then the camera left without a lens for a year or more. This can produce a mismatch between lens and body number, and so this table should be seen as only a rough guide.

Year	Zeiss Ikon Camera Body Serial Letters	Carl Zeiss Lens Serial Numbers
1926	L	700000-750000
1927	M,N	750000-800000
1928	O,P	800000-900000
1929	Q,R	900000-1000000
1930	S,T	1000000-1150000
1931	U	1150000-1300000
1932	V	1300000-1400000
1933	X	1400000-1500000
1934	Y	1500000-1600000
1935	Y,Z	1600000-1750000
1936	A,B,C	1750000-1950000
1937	D,E,F	1950000-2200000
1938	G,H	2200000-2350000
1939	J,K,L,M	2350000-2650000

Methodology

By collecting Zeiss Ikon serial numbers, groupings of different camera model production can be seen. By looking at when one camera model production batch finished and another started, estimates of the number of cameras produced in that batch can be made. This is illustrated by an example from 1935.

Y59658 Super Ikonta 530/15
Y59717 Super Ikonta 530/15
Y59823 Super Nettel I 536/24
Y59923 Super Nettel I 536/24
Y62255 Super Nettel I 536/24
Y62517 Super Nettel I 536/24
Y62744 Super Nettel I 536/24
Y62833 Contax I 540/24
Y63166 Contax I 540/24

From the above data I made some assumptions about the Super Nettel I 536/24 production batch illustrated. Production started after Y59717 and before or on Y59823. Production stopped on or after Y62744 but before Y62833. Therefore the total production of Super Nettel I's in this batch could not be greater than 3116 or less than 2921. From this I

have made the deduction that this production batch contained 3000 Super Nettel I's.

Duplication

There was an unusual discrepancy in 1934: a duplication of serial numbers on a batch of Contax I 540/24s and Ikoflex I 850/16s. The range of duplication is Y16000 to Y16500. I assume that this was an uncharacteristic Zeiss Ikon mistake.

Postwar Production Using Prewar Bodies

A batch of Super Ikonta 531/16 bodies (H14500 to H16000) dating from 1938 was fitted with postwar Zeiss Opton Tessars in the serial range 25000 to 26500. I assume that a batch of Super Ikonta 531/16 bodies survived the war and were subsequently fitted with postwar lenses.

Multiple-letter Serial Numbers

Not all serial numbers contained only one letter. Contax I 540/24s with serial numbers starting with "AU" and "AV" are common. Also to be found are Ikoflex III 852/16s with serial numbers starting with "TD" or "TG". In all these cases the second letter is the correct serial designator. Does anyone know what the "A" or "T" stood for? And what is to be made of a Contax I serial number like AU4989OPP?

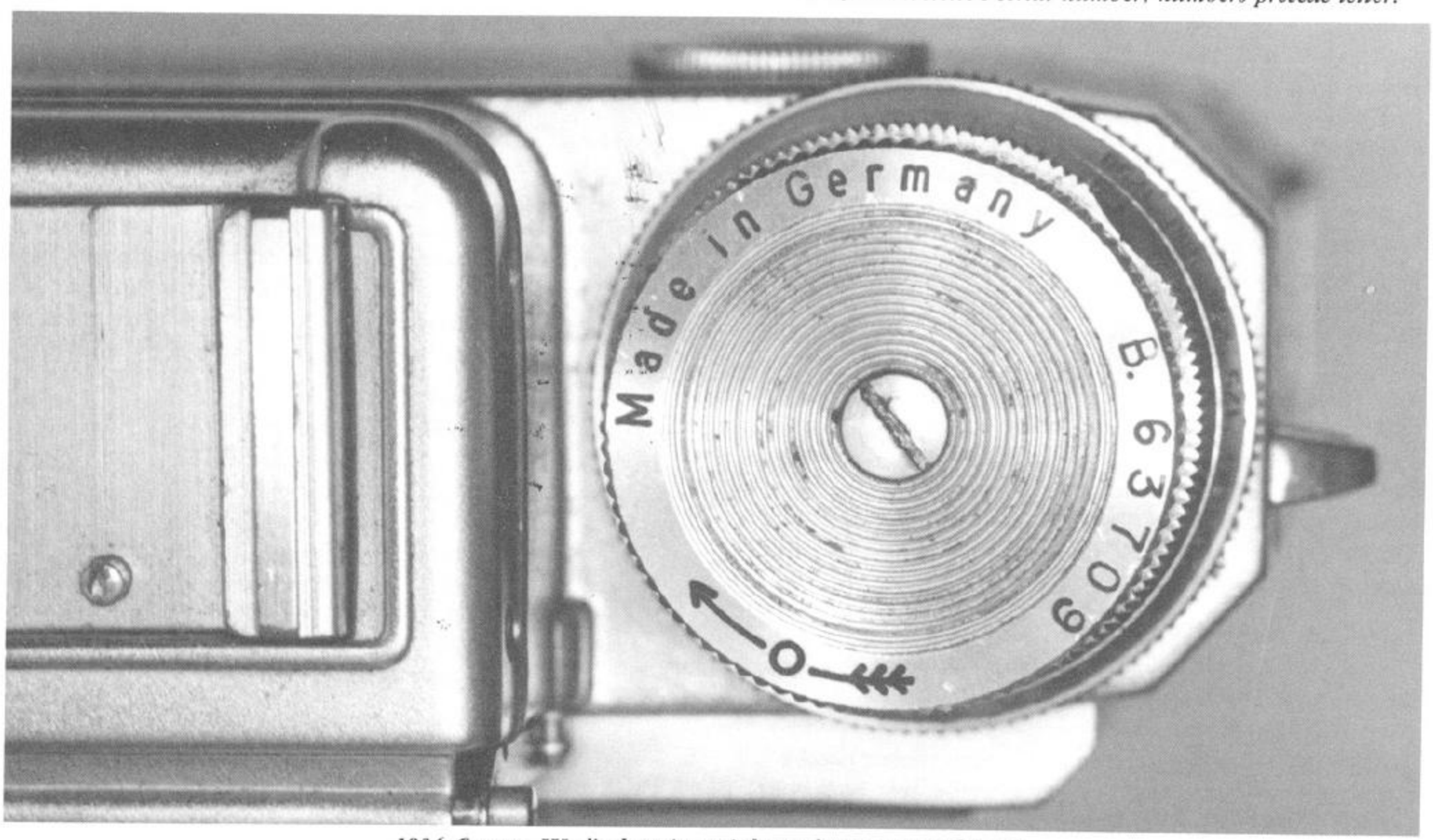
The Letter "W"

Serial numbers starting with "W" were reserved for accessories (Contameters, Stereotars) or movie cameras such as the Movikon.

The Letter "I"

The letter "I" was not used. I have had reported to me cameras with an "I" serial number, but further investigation has always proved them to be misread. They are usually "T" or "E".

In 1926 Picolette's serial number, numbers precede letter.



1936 Contax III displays its serial number on rewind knob.

Six-digit Serial Numbers

A number of cameras have been reported as having a six-digit number. These range from a 1926 Onito, M655627, to a Contax II, G113642. A mistake at the factory or misreported?

Production Numbers of Zeiss Ikon Miniatures

Zeiss Ikon miniatures are much sought after and much studied. Therefore, I have a disproportionately high sample rate for these cameras. From my own data I would suggest the following production figures.

Contaflex 860/24

In an article called "Remembering Zeiss Ikon", in the Journal of the Zeiss Historica Society, Volume 3 Number 1, p.3, a figure of 25,000 to 30,000 is given for total production of the Contaflex 860/24, with production batches of 5000. My studies suggest that the figure for production runs was more likely to be 1500, and that total production was approximately 7510. I have identified five production runs plus a small pre-production run. These are:

Serial Number Range	Production Estimate	Sample Size
X97635 to X97645	10(?)	Pre-production prototypes (2)
Y84000 to Y85500	1500	28
Z41500 to Z43000	1500	27
A45500 to A47000	1500	36
A49500 to A51000	1500	21
A75500 to A77000	1500	13
Total Production:	7510	

Tenax I 570/27

Serial Number Range	Production Estimate	Sample Size
H87500 to H96000	10000	35
J80000 to J88000	10000	17
M42000 to M47000	7500	5
Total Production:	27500	

Tenax II 580/27

Serial Number Range	Production Estimate	Sample Size
E3000 to E5000	2000	34
H74000 to H77000	3000	27
J88000 to J91500	3500	19
Total Production:	8500	

Super Nettel I 536/24

Serial Number Range	Production Estimate	Sample Size
R99840 to R99850	10	Pre-production prototypes (1)
X92000 to X95000	3000	39
Y29500 to Y32500	3000	32
Y59800 to Y62800	3000	37
C20000 to C21000	1000	10
F40000 to F41000	1000	11
F46000 to F47500	1500	19
Total Production:	12510	

Super Nettel II 537/24

Serial Number Range	Production Estimate	Sample Size
Z43000 to Z44000	1000	11
B22000 to B23000	1000	20
Total Production:	2000	

Kolibri 523/18

Serial Number Range	Production Estimate	Sample Size
Q68750 to Q69750	1000	4
R72500 to R73500	1000	7
R98800 to R99800	1000	3
S30000 to S33000	3000	23
S46000 to S49000	3000	10
S55000 to S59000	4000	21
S88400 to S89400	1000	8
S91000 to S92000	1000	7
S98000 to S99999	2000	8
T37000 to T38000	1000	2
Total Production:	18000	

Nettax 538/24

Serial Number Range	Production Estimate	Sample Size
A47500 to A48500	1000	25
B30000 to B31000	1000	20
C86000 to C87000	1000	17
Total Production:	3000	

Contax I, II, and III

I have not covered the Contax range of cameras as they are covered in the excellent book "Auf den Spuren der Contax" by fellow Zeiss Historica member, Hans-Juergen Kuc.

Accuracy

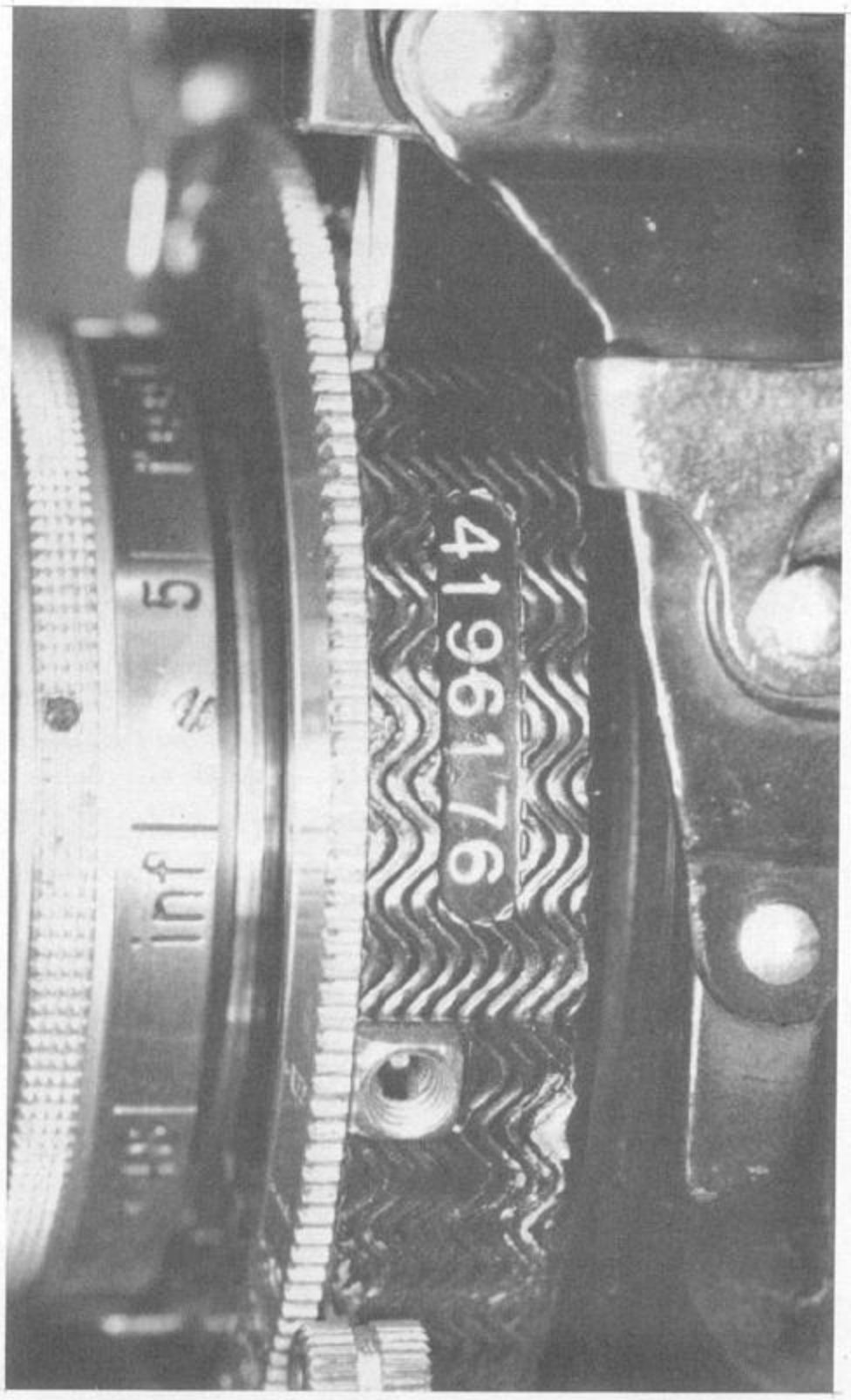
Obviously the accuracy of the above data depends on the sample size and my own deductions. I am sure that many readers will be able to identify areas where I have overestimated or underestimated production and possibly even missed entire production batches.

I ask anyone who can add to my database, and therefore increase the accuracy of the above figures, to send me their data.

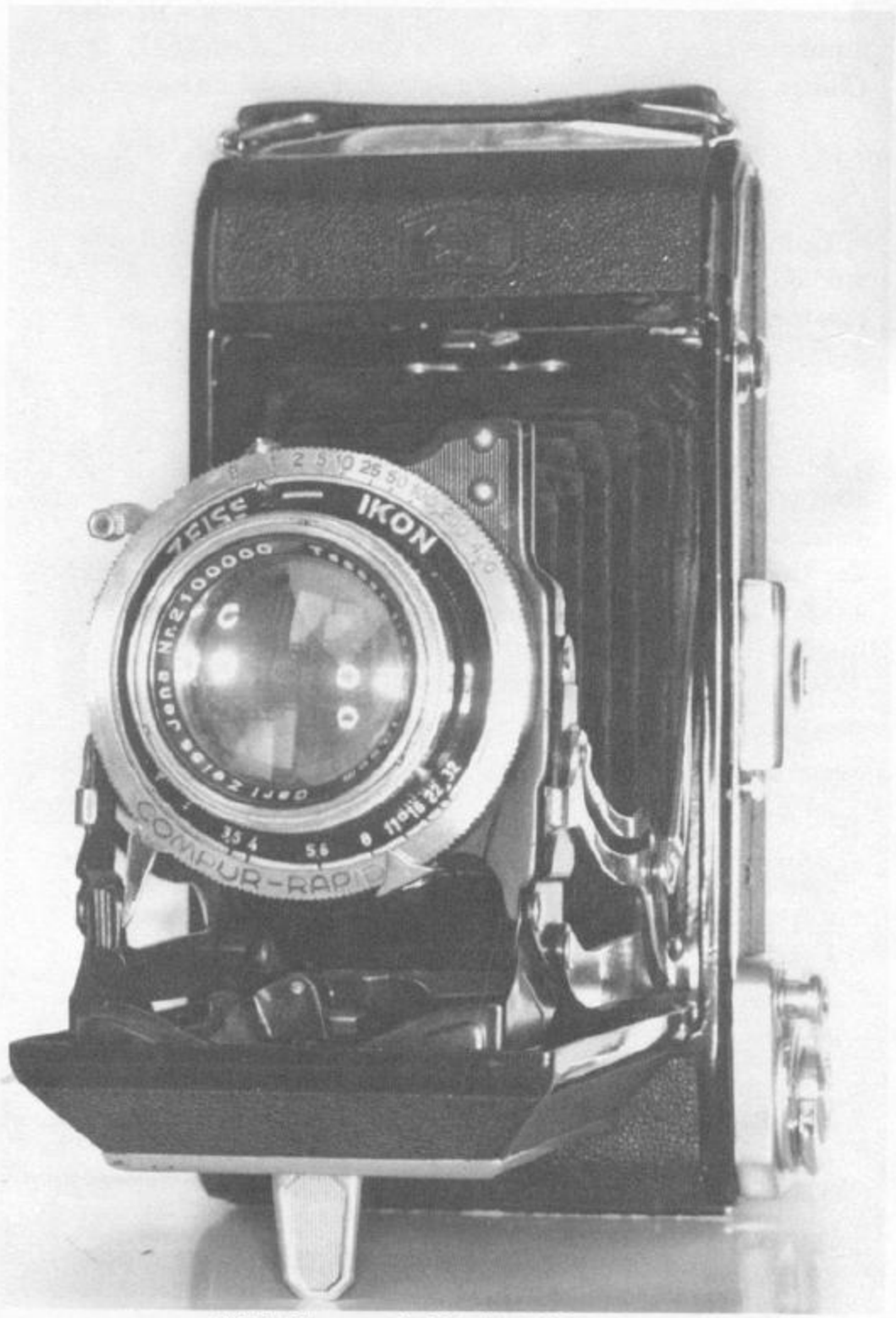
Editors' note: to assist Simon Worsley in his research, a copy of his questionaire is included with this issue of the Journal. Please use it to send him your records of cameras and serial numbers. Accurate records of Zeiss Ikon production and production dates will clearly be of great use to all Zeiss collectors and historians.

Additional information on prewar Zeiss serial numbers can be found in the following Journal articles:

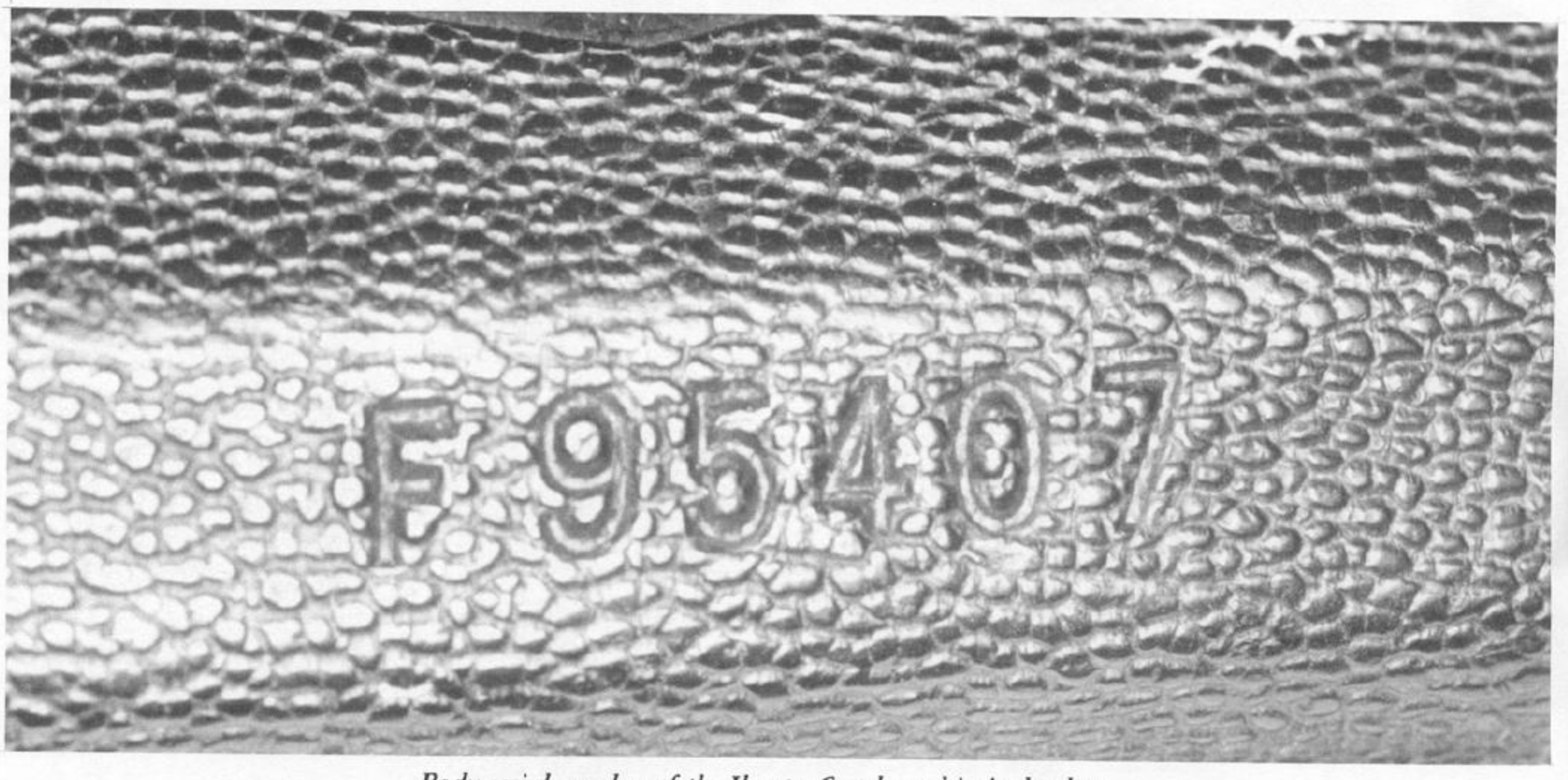
ISSUE	TITLE	AUTHOR
Folio 1979	Contaflex...on the Microscope	F. Mollring
Spring 1981	Remembering Zeiss Ikon	
"	Camera Identification Systems	N. Grossman
Spring 1982	Contax Chronicle	H.-J. Kuc
"	Kolibri 1930—1932	L. Gubas
Fall 1982	The Super Ikontas	L. Gubas
"	Contax SLR Cameras	H.-J. Kuc
Spring 1983	A Contaflex Prototype	H.-J. Kuc
"	Ikoflex Cameras	L. Gubas
"	Tenax X-Ray Camera	L. Gubas
Spring 1986	A Nettar B?	M. Zubatkin
"	By Any Other Name	M. Zubatkin
Spring 1988	Prewar Zeiss Ikon 35s	L. Gubas
"	Prewar Leica and Contax, Pt. I	R. Helm
Fall 1988	Prewar Leica and Contax, Pt. II	R. Helm
Spring 1989	Olympic Sonnar	C. Barringer
Fall 1989	Icarette-Ikonta Connection	J. Brown
Spring 1991	Something Zeiss to Say	G. Bedore



Serial number of the Ikonta C's Compur-Rapid shutter



1937 Ikonta C 521/2 with noteworthy serial number on its Tessar lens: 2100000.



Body serial number of the Ikonta C embossed in its leather.

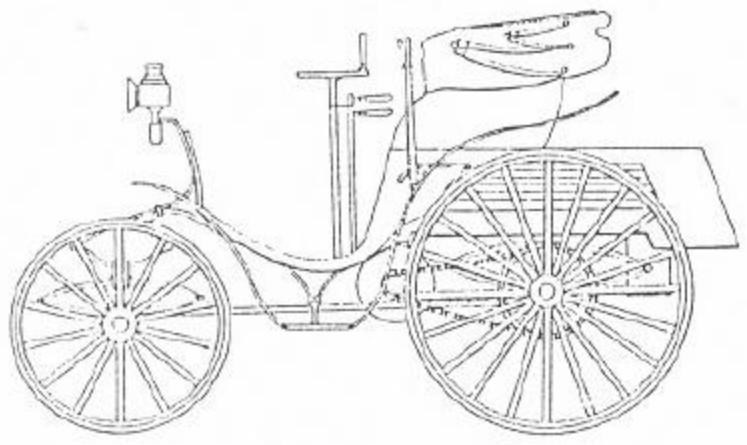
AUTOMOBILE HEADLIGHTS FROM CARL ZEISS

Dr. Gerhard Mirsching, Schondorf, Germany

Carl Zeiss in Jena commenced the production of automobile headlights in 1911. At that time the motorcar, as it was then called, was a quarter of a century old and had seen some dramatic developments in the course of its short life. An automobile built in 1911 bore little resemblance to its ancestors of 1886, and the same applied to automobile accessories and lighting technology.

The development of automobile accessories — and these include lights — was a step by step process. As the reliability of the first automobiles left a lot to be desired, journeys in the dark were an exception. As in coaches, illumination was provided by candle lamps, which were later supplemented by kerosene lamps, positioned between them.

The design of vehicle illumination was defined by law at an early stage. An edict issued in 1888 in the former Kingdom of Wuerttemberg stipulated that "the illumination of vehicles



1892 Benz Victoria. Headlights are oil-fueled.

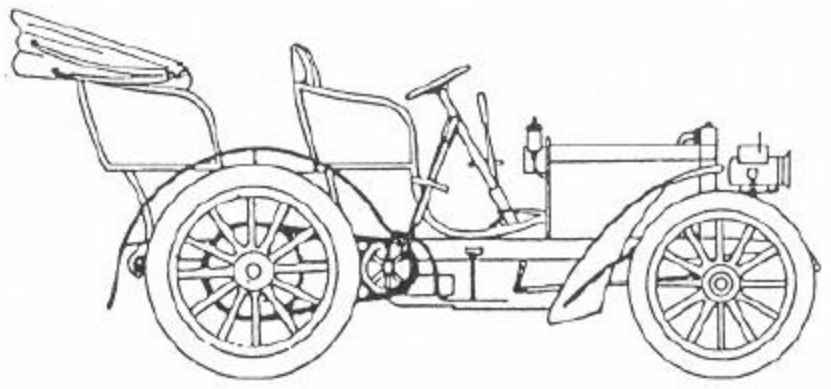
used mainly for the transportation of persons should be provided by a lamp mounted on the canopy top or by two lamps arranged on the sides as near the front of the vehicle as possible."

In 1906 a new edict was issued; this was then incorporated unchanged in a "law governing traffic with motor vehicles" enacted three years later on May 3, 1909.

This legislation was valid in the then German empire. Section B, paragraph 3 clause contains the requirement that "after the fall of darkness and in dense fog, every vehicle shall be equipped with two bright lamps made of clear glass, arranged at the same level and marking the lateral limits of the vehicle; these shall project the light onto the carriageway such that it can be viewed by the driver for a distance of at least 20 meters from the vehicle." It also warned that "headlights producing excessive light shall not be used."

Acetylene Emerges

Acetylene illumination started to emerge at the turn of the century. Acetylene (C_2H_2) is a highly explosive gas produced by chemical reaction: the binding calcium carbide and water. A water container with a regulating valve and a carbide container were attached to the running board of the vehicle;



In the first Mercedes automobile of 1900/1901, acetylene has taken over.

the acetylene gas produced here was then directed via gas pipes to the burners contained in the headlights.

Acetylene illumination had several drawbacks. The binding of water and carbide resulted in the formation of lime sludge, which meant that the carbide containers had to be cleaned frequently. Another disadvantage was the penetrating, pungent smell produced even if tiny particles of acetylene escaped into the air.

The automobile headlights used in those days were relatively large. They had a brass housing, featured a spherical metal reflector, and were fitted with a simple cover made of clear glass.

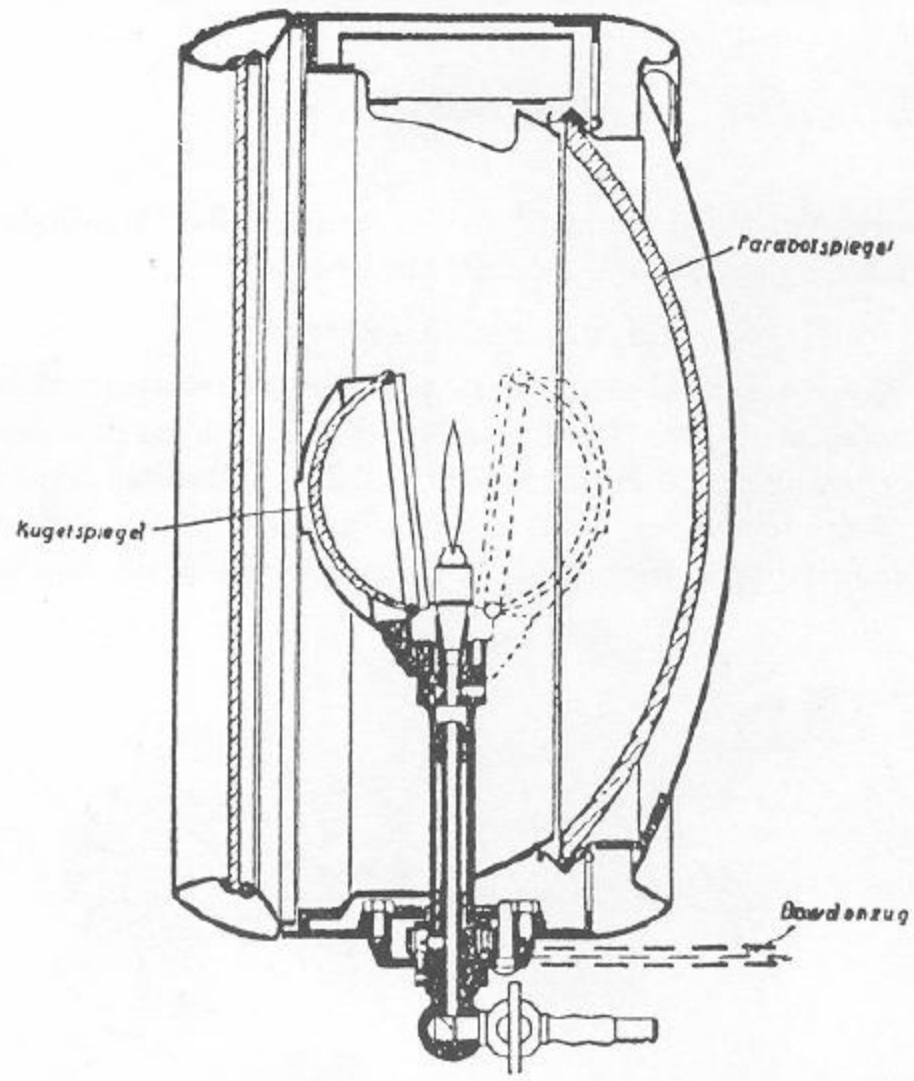
Around 1909, Professor Rudolf Straubel recommended that the firm of Carl Zeiss should become involved in the production of automobile headlights. In his own characteristic way as a foresighted, forward-looking entrepreneur, Straubel recognized the future importance of the automobile and the opportunities which it offered Carl Zeiss as a supplier of accessories.

Straubel decided to tread new paths in product design: instead of the spherical metal reflectors used until then, the

Zeiss headlights were fitted with parabolic reflectors in order to achieve better light efficiency. This was not the only special feature of the headlights produced by Carl Zeiss in Jena. The Zeiss parabolic reflector was also made of ground crystal glass and its back was silver-plated.

Production Begins

Production commenced in Jena in 1911; it was performed manually on a small scale. The original intention to transfer headlight production to the new Saalfeld factory was later



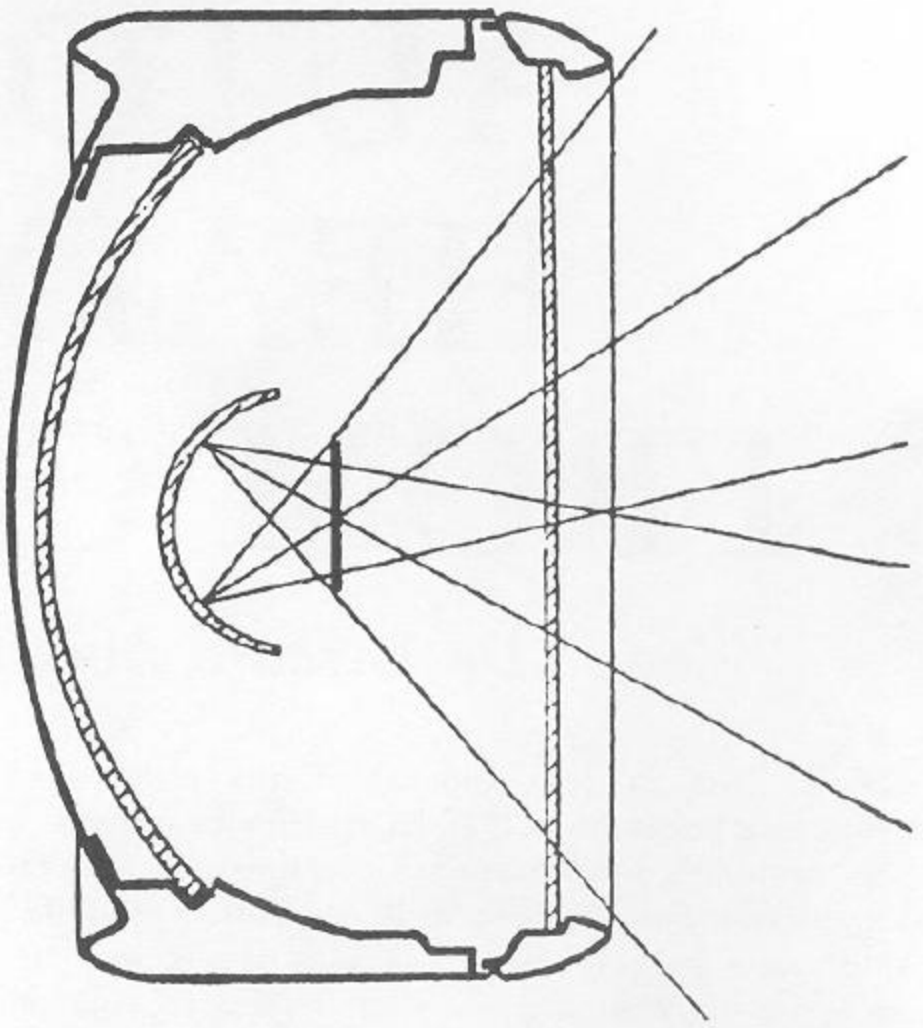
1911 acetylene headlight from Zeiss. Here, auxiliary mirror is in "high beam" position. Dotted line shows mirror in "dimmed" position. Large rear mirror is parabolic, auxiliary mirror is spherical. Auxiliary mirror is turned via a Bowden cable.

abandoned; instead, production was farmed out for a short time to the workshops of the Hahn firm in Kassel.[1]

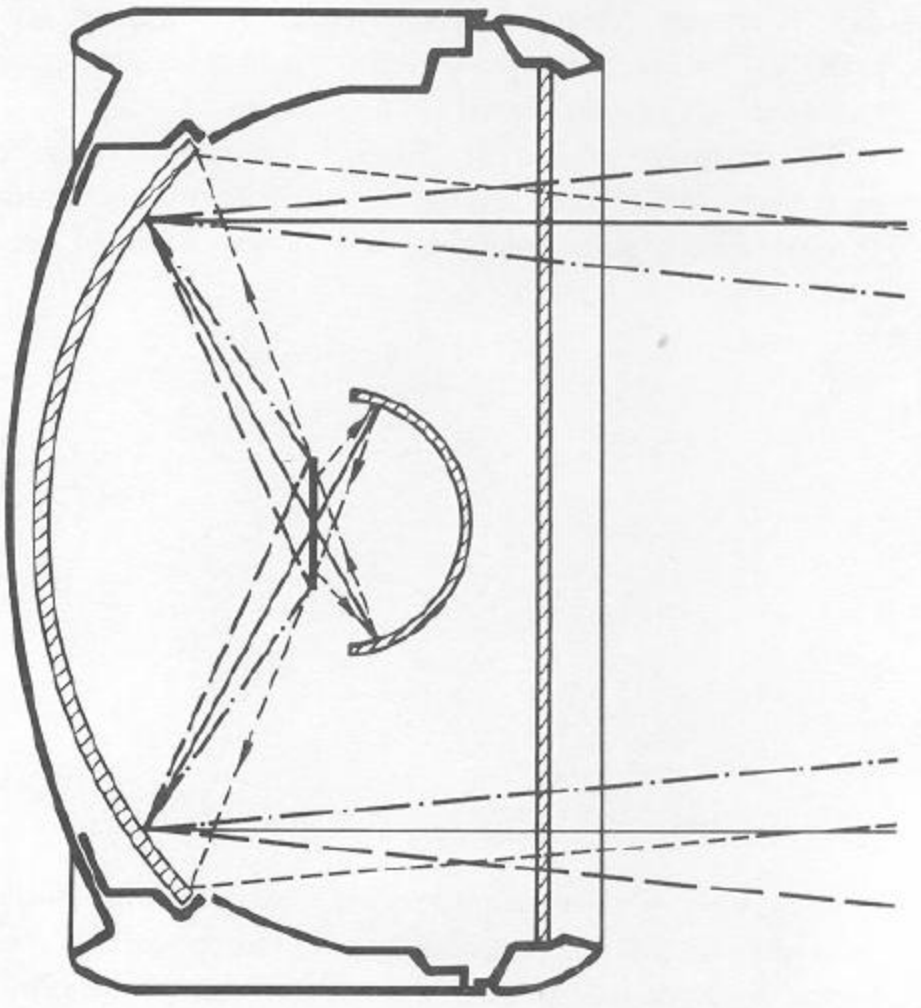
In 1913 headlight production returned to Jena and was located in the yellow building in the northeastern corner of the Zeiss factory. It was initially headed by "master craftsman" Weiss, who had come from Hahn along with the headlight production area, and subsequently by his successor Krause. Initially, foreman Rausch had overall supervisory responsibility for the area, but this post was later abolished.

The headlight production area was part of the Binocular Department until October 1912, after which it became an independent entity and was christened "The Auto Department."

Skilled workers were employed in the headlight production area. The sheet metal work involved in the production of the lamp housing was not performed by sheet metal workers, but by mechanics. Each working day, every mechanic produced approximately ten lamp housings which they buffed and polished themselves. Later, when larger batches of lamps were



Dimming the Zeiss headlight. Revolving the auxiliary mirror to position behind the light source spreads and diffuses the beam.



Ray path in the Zeiss headlight on "high beam". Small hemisphere is the auxiliary mirror.

produced, the Bethge polishing shop performed this polishing and buffing work. When the headlight production was expanded, a large number of the basic housings were purchased from the firm of Schwer, Triburg and Baumann in Leipzig.

The manufacture and assembly of acetylene burners required a particularly high degree of precision. The demand for Zeiss "auto lamps", as they were then called, was very

brisk. However, the small size of the workshop prevented any expansion of the production area. Larger premises had to be found and more people employed.

The move to new premises took place in 1914, a few months after the start of the First World War. At this time, the firm's product line included not only several acetylene headlights, but also the first electric automobile headlights to bear the Zeiss trademark.

One year earlier, in 1913, the firm of Robert Bosch in Stuttgart had launched the first electric automobile headlights on the market. Robert Bosch had commenced his initial experiments in this field in 1905. At that time, usable generators were not yet available, and existing carbon-filament bulbs designed for stationary use could not resist the vibrations that resulted from vehicle motion.

No solution was found until the emergence, first, of the generator, which allowed the storage battery, serving as the source of electricity, to be charged without need for maintenance, and second, the development of the metallic-filament bulb.

A large number of details had to be worked out. These included the shape of the headlight reflector, the focusing of the bulb and its mounting arrangements, and the avoidance of glare. Gottlob Honold, who worked closely with the owner of the company, played a decisive role in the development of the electric automobile headlight at Bosch.[2]

During the First World War the production of automobile headlights was reduced. Headlights were indeed manufactured, but only for military use as so-called "trench searchlights" and boat projector lamps.

After World War I

After the end of the war the headlight production area moved into the new high-rise building at Zeiss. Subsequently, Carl Zeiss in Jena benefited from the upturn in the automobile industry in the Germany of that time. The demand for Zeiss automobile headlights increased, and the sales of the Auto Department accounted for a major portion of the firm's overall business.

Initially, E. Fischer was in charge of commercial activities in the Automobile Department. He was later succeeded by O. Klaeber. The scientific head of the department was Dr. Hartinger. Senior engineer Franz A. Meyer[3] and engineer Orth were responsible for design. Messrs. Jansen and Leser were in charge of marketing, and it was they to whom the department largely owed its successful sales figures during these years.

Agreement with Bosch

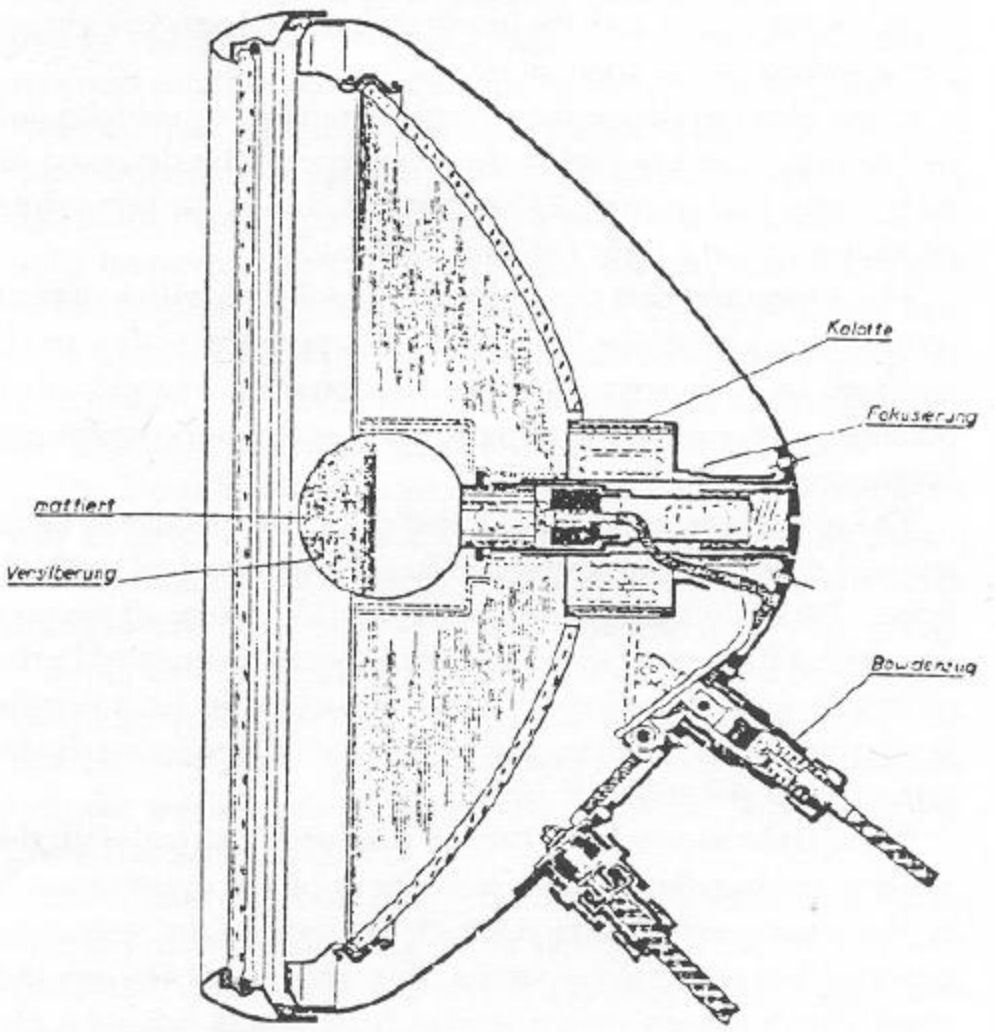
On June 11, 1921 the optical workshops of Carl Zeiss in Jena signed a so-called "reciprocity agreement" with the company Robert Bosch GmbH in Stuttgart. Bosch undertook to offer its customers not only the headlights with metal reflectors produced in its own factory, but also the Zeiss headlights featuring glass reflectors. In return, Zeiss undertook to use Bosch generators and starters when converting vehicles from acetylene to electric headlights. The conversion work was performed in the Zeiss workshop (formerly the Weidig pianoforte factory and headed by engineer Becker) in the Dornburgerstrasse in Jena.

This contractual agreement was also valid outside Germany, and from May 1924, only outside Germany. On May 26, 1929, the contract between the two companies was terminated by mutual consent.

In the years that followed, the production range of Zeiss was extended to include the manufacture of Zeiss fog light headlamps and the so-called "spot light". The economic heyday of the Auto Department at Carl Zeiss Jena occurred between 1926 and 1929. Annual sales totalled nearly 3 million Reichsmarks, a fifth of which came from exports.

After this period, there was a marked downturn in business. The world economic crisis led to a considerable drop in the sales of large, luxury automobiles, resulting in a corresponding reduction in the number of Zeiss headlights sold.

The drop in sales was also partly due to technical deficiencies. A memorandum dated May 24, 1932 contained a comment to the effect that the headlight "does not function perfectly when fed by a current-regulating generator. The only remedy possible is the integration of a voltage-regulating generator". This memo criticized the design department for failing to take this into account.



1921 electric headlight from Zeiss. Headlight is dimmed by moving a sheet-metal cylinder over the rear of the single-filament bulb. Cylinder is actuated by a Bowden cable.

Another note contained interesting sales and production figures: in the second half of 1931, 186 6-volt headlights were sold, and in the first half of 1932, 212 12-volt headlights were sold.

In the period just mentioned, 250 headlights were produced in Jena, including 50 for Mercedes-Benz automobiles. Headlight production in Jena had shrunk into insignificance.

In a note to management dated January 2, 1933, the commercial head of the Automobile Department, O. Klaeber, commented as follows: "Non-involvement in metal reflector production will force us further and further out of the head-

light market, quite apart from the opportunity which Bosch has of delivering light equipment of every type. Although I assume that the management is submitting this situation to closer scrutiny, I nevertheless see it as my duty to draw their attention to this state of affairs. Signed Klae."[4]

This note also contained a price comparison. The price of the Bosch metal headlight reflector was 2.50 Reichsmarks; that of the glass reflector from Zeiss was 32.40 Reichsmarks — almost thirteen times more!

The days of the high-quality automobile headlights containing glass paraboloid reflectors with a silver coating on their back surface were now gone. They were still built into individual automobiles during those years, e.g. in a 1935 Mercedes-Benz type 500K, the body of which was provided by Erdmann & Rossi in Berlin-Halensee. It was probably economic reasons which led to the abandonment of automobile headlight production at Carl Zeiss Jena.

Two Technical Requirements

Two totally different requirements had to be met in the development of automobile headlights. When driving on country roads, a large stretch of the roadway in front of the vehicle had to be illuminated. When driving through built-up areas, on the other hand, the headlights needed only to light up a few meters of the road ahead.

It was also important that people in oncoming vehicles not be blinded. The headlights therefore had to be designed in such a way that they could be dimmed, but at the same time provide sufficient light for slow driving.[5]

These requirements can be met by headlights whose optical properties allow all the light of the illumination source to be gathered in such a way that all light rays are (theoretically) parallel on leaving the headlight. This guarantees maximum brightness.

The use of lens systems was ruled out since a relatively large amount of necessary light would have been absorbed by thick lenses. Parabolic reflectors made it possible to fuse all the rays emanating from any point on a light source positioned in the reflector's focal plane in such a way that a parallel light bundle is obtained. The diameter of this light bundle was exactly the same size as the reflector itself.

Every light source has a certain extension or size, with the result that a bundle emerges from every point at the same angle to the optical axis as that at which the light of the respective point strikes the reflector vertex. If stronger light sources and headlight reflectors with a smaller focal length are used, the angle at which the pencil of light emerges increases. The cone of light becomes wider. This effect leads not only to better lateral illumination of the roadway and of the curves to be negotiated, but also reduces the rays that project in an upward and downward direction.

The headlight developed by Zeiss featured an optical system consisting of a principal reflector and an auxiliary reflector. The principal reflector was comprised of polished ground crystal glass parabolic mirror with silver plating on its back surface and a diameter of 200 to 240 mm.[6] The spherical reflector — also made of crystal glass — was arranged in front of the principal reflector and acted as an auxiliary mirror.

Due to its good reflecting capacity, the principal reflector projected a very bright image of the light source. Due to its very small focal length (70 or 90 mm) the image was also sufficiently large.

October 1924 ad displays Zeiss headlights, makes special mention of the yellow beam for fog.

The effect of the principal reflector was heightened by the auxiliary reflector (the small spherical mirror). This was positioned so that it generated an equally large, but inverted image which was partly superimposed on the light source. For the principal reflector, this image acted like a second light source.

Since all light rays were gathered and concentrated in an extremely small space, this optical system provided greater brightness than was possible with the headlights common at that time.

As glass reflectors can be more finely polished than metal mirrors, a further enhancement in brightness was possible. The glass reflector has another advantage over the metal reflector: it can be cleaned with leather or linen. This was not feasible with metal reflectors. The clear coating of lacquer on the silver-plated metal reflector was detrimentally affected by the cleaning process, so that the reflector surface became tarnished or oxidized.

Bright and Dim

Zeiss automobile headlights were dimmed by rotating the spherical auxiliary reflector 180° around the axis of the light source. In this position the auxiliary reflector also acted as a stop, cutting off the supply of light to the principal reflector. The auxiliary reflector reflected the light so that a wide cone of light and therefore good close-up illumination resulted.

This dimming system was used in the first automobile

Zeiss could light your garage as well as your way home. April 1925 ad shows Zeiss "mirror-light".

headlight in 1911. The 180° rotation of the auxiliary reflector was performed by means of a Bowden cable attached to the headlight itself, running to a lever below the steering wheel.

Carl Zeiss in Jena was awarded German patent DRP No. 250574 of October 12, 1910 for its reflector headlights and an additional patent DRP No. 252147 of November 4, 1910.[7]

Headlights of this type were doubtless suitable for the first cars built after the First World War, most of which were improved prewar models. Designers then focused their work on the improvement of individual components, with the aim of increasing the safety of the automobile and making it easier to handle.

The accessory industry, and therefore also headlight manufacturers, had to adapt to changes. The possibility of driving at greater speeds increased the demand for intensive long-distance lighting and glare-free dimmed lighting.

Enter the Twin Filament

The introduction of the twin-filament bulb met the latter requirement. All the driver now had to do was switch from "high-beam" to "low-beam". In the twin-filament bulb, the main filament was located at the focus of the reflector, or very close to it. It illuminated the entire surface of the reflector. The second filament for low beam was located at a greater distance from the reflector and was screened by a metal cap so that the light rays illuminated only the upper half of the reflector. The second filament had less wattage and was therefore less bright than the principal filament.

Due to its position and screening, the inclination of the second filament's light rays towards the roadway was more pronounced than that of the rays of the principal filament. Thus the section of the roadway lying directly in front of the vehicle was well illuminated.

Because the position of the second filament lies in front of the focal point of the reflector, the light is strongly bundled on leaving the headlight. However, to achieve a broad scattering of the light, scattering headlight glass had to be used.

This "combined headlight" was developed from the acetylene headlight: the filament bulb simply replaced the burner. The bulb was positioned in exactly the same way as the burner in the headlight, with the lamp axis perpendicular to the reflector axis. The front half of the bulb was metal-coated and performed the function of the spherical reflector used in the acetylene headlight.

Electric Headlights from Zeiss

Around 1921, the first electric automobile headlight developed by Carl Zeiss in Jena appeared on the market. The front part of the horizontally positioned bulb was silver-plated and received the light emitted in the forward direction. Like the spherical reflector in the former acetylene headlight, the reflecting surface of the bulb projected the entire light onto the paraboloid (principle) reflector. The central front area of the bulb, however, was not silver-plated, only frosted. If this part of the bulb had also been silver-plated, the light would have been reflected onto the base of the bulb to no useful purpose. The frosted area of the bulb allowed the light to emerge from the headlight and to be used for forward illumination.

The Zeiss headlight was dimmed by means of a cap. This was in effect a sheet-metal cylinder with round holes drawn over the rear part of the bulb via a Bowden cable. Yellow bulbs could be used to decrease the risks involved in driving in fog.

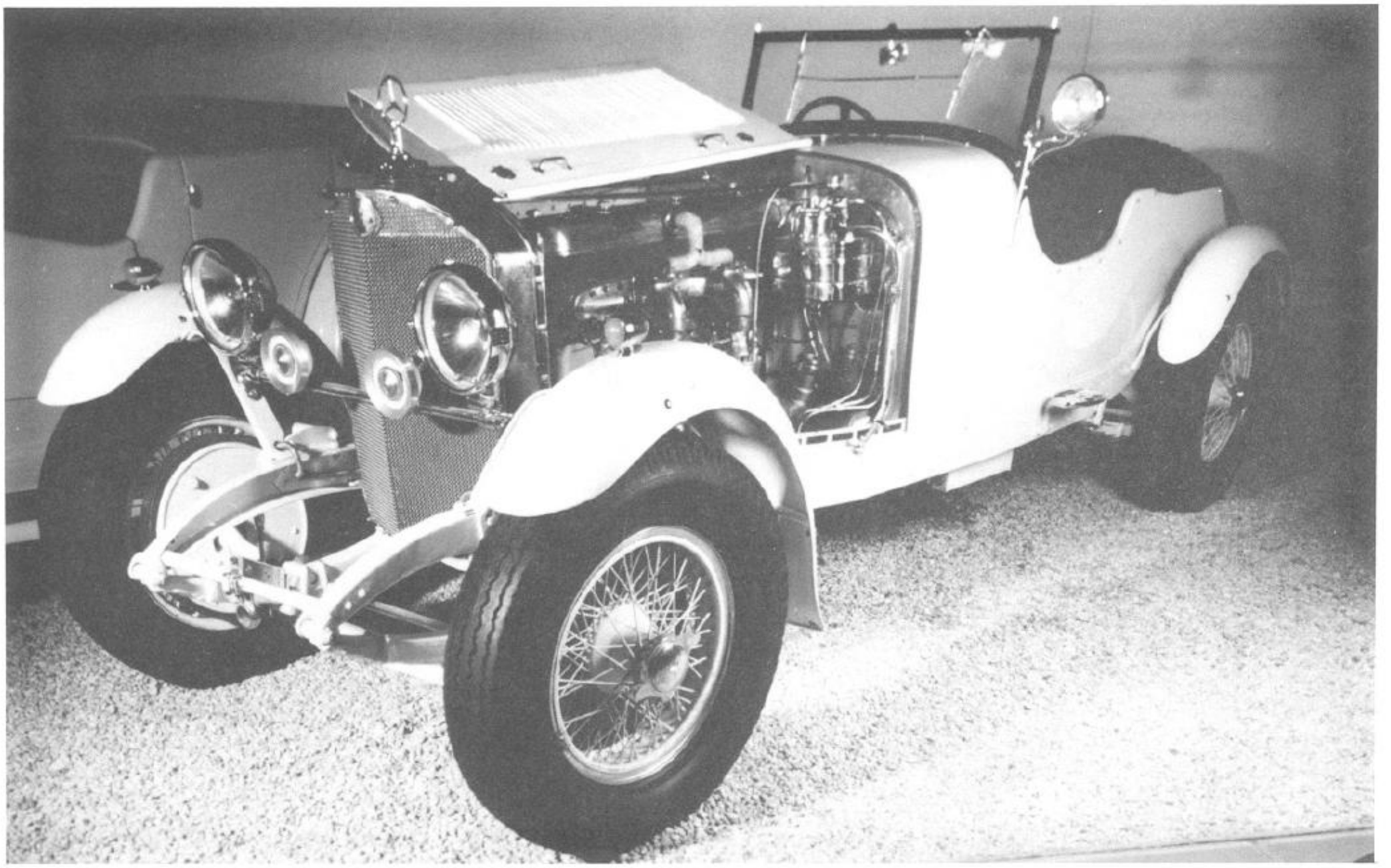
Later, in 1923, the sheet-metal cap was replaced by a frosted yellow glass cylinder in a metal frame, which prevented the full intensity of the light from hitting the reflector. The yellow cylinder was also moved by a Bowden cable. This model was given the name ZESAPS.

Carl Zeiss in Jena also produced headlights with twin-filament dimming, which were designated ZESDOPS and ZESDOS. The former was sealed with door-type hinges, and the latter by means of a taut band.

Contemporary criticism of these headlights typified this epoch of classical automobile construction: "In the automobile, too, special emphasis is laid in many cases on the aesthetic effect, and there is no disputing the fact that a transparent cover glass with a highly polished glass parabolic reflector behind it looks more elegant than an opaque cover glass."

Development work continued on the classic Zeiss headlight, with the ground crystal glass parabolic reflector continuing as its hallmark. A successful solution was found to the dimming and fog light problem. A frosted yellow glass cylinder in a metal frame, moved by a Bowden cable, replaced the metal cap in 1923.

In the ZESAPS fog headlight introduced around 1930, the yellow glass cylinder which was cut to approximate the shape of a prism could be moved electromagnetically over the bulb.



1929 Mercedes grand touring cabriolet, type WS 06 SS 710, with Zeiss electric headlights. (Driver's side headlight carries serial number 102 405; passenger's side is number 102 433.) Motor was constructed by Ferdinand Porsche; electrical power came from 12-volt magneto and battery system. The same model, driven by Caracciola and Werner, won the Nuerburgring Grand Prix in 1928.

This converted the *entire* far-beam light into glare-free dimmed light for close-up illumination.

The type of glass used in the yellow glass cylinder generated long-wave yellow light, which penetrated thick mist and fog more effectively than normal white headlamp light. Human vision functions better in yellow light than in normal light: contrast is increased and the difference in brightness between two objects of similar colors is more pronounced.[8]

As in the headlight with twin-filament dimming, the switchover from far-beam to dimmed light (fog light) was performed by pressing a button. From the point of view of operation, there was no difference between the headlights with twin-filament dimming (ZESDOPS or ZESDOS) and the fog-light with electromagnetic dimming (ZESAPS). The difference was in the price!

[1]*AG Habn Fuer Optik and Mechanik, founded in Kassel in 1871. In 1927, the firm was acquired by Zeiss Ikon AG, founded in 1926 and domiciled in Dresden until 1945.*

[2]*Heuss, T.: Robert Bosch — Leben und Leistung, Munich 1975, page 145.*

Fuenfzig Jahre Bosch — 1886-1936, Stuttgart 1936, page 86ff.

[3]*Franz A. Meyer (born June 6, 1868 in Hamburg, died May 29, 1933 in Jena) was the first engineer with a college education to be employed in the Optical Workshops of Carl Zeiss in Jena. Abbe was of the opinion that, for the construction of large astronomical instruments, a number of questions could be solved only with the expertise of an academically trained engineer, and that staff with the necessary qualifications should be employed.*

Franz A. Meyer was a man of many talents: the instruments which he built included interference longitudinal division machines, and he played a decisive role in the development of Zeiss automobile headlights. In 1930, he was awarded an honorary doctorate in philosophy from the Friedrich Schiller University in Jena.

[4]*The memoranda cited here were viewed by the author in the Weimar State Archives.*

[5]*Former and current legal stipulations are not taken into consideration in the following discussion.*

[6]*The author's assumption that the crystal glass reflector was manufactured at the Jenaer Glaswerke Schott & Gen. or at the Sendlinger Optische Glaswerke GmbH — SOG — could not be confirmed in the archive material.*

[7]*DRP No. 250574 — Reflector headlights Patent holder: Carl Zeiss in Jena, patented in Germany from October 12, 1910. DRP No. 252174 — Reflector headlights (Supplement to Patent 250574). Patent holder: Carl Zeiss in Jena, patented in Germany from November 4, 1910.*

[8]*Sachtleben, K.: Scheinwerfer, die nicht blenden, Motor-Kritik No. 12, page 415, Frankfurt/Main, 1935.*

The above article was edited and translated from the original German through the courtesy of Drs. Pfeiffer and Henning in Oberkochen. It has been slightly abridged by the editors of Zeiss Historica.

ZEISS MICROSCOPE ADORNS BANK NOTE

Hans-Juergen Kuc, Hamburg, Germany

A famous doctor and his most important tool are depicted on the 200 DM note which the Federal Bank of Germany first issued in October 1990.

On the obverse of the note, doctor and serologist Paul Ehrlich constitutes the main motif. A photo taken on his 60th birthday served as model. On the left are shown historic buildings in Frankfurt (on the Main), his former residence among them. Frankfurt used to be one of Paul Ehrlich's most important domains. Overlaying a view of the city is the molecular structure of arsenobenzole, a main ingredient of the drug Salvarsan, while a stylized cell structure encircles the picture, thus emphasizing the symbolic importance of medicine.

On the reverse is a microscope of the Optische Werkstaette Carl Zeiss Jena. The model for this was an instrument manufactured in 1877, which bears the serial number 3078 and comes from the Optical Museum in Oberkochen. Its base, depicted on the bank note, is formed by the stand IV. Equipped with a lens turret and two lenses, such a microscope was Paul Ehrlich's preferred instrument. The background is formed of viruses and bacteria structures which Paul Ehrlich successfully studied in depth. Microscope images shown in the upper half also refer to Paul Ehrlich's works and discoveries. Finally, we recognize the staff of Aesculapius as well as a stylized retort, visually confirming the close connection between medicine and chemistry. This connection also characterizes Paul Ehrlich's life's work.

Paul Ehrlich, born in Strehlen in Silesia on March 14th 1854, is regarded as one of Germany's most eminent scientists. In the history of medicine he is recognized as the founder of chemotherapy as well as co-founder of immunology. In 1899, Paul Ehrlich moved to the Royal Institute for Experimental

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Versandanweisung/Shipping Instructions

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Gegenstand Description	Bestellnummer Catalogue No.	Menge/ Einheit Quantity/ unit	Einzel-Preis Price per unit	Preis Gesamt Total Price

Sie erhalten als Leihgabe aus dem Optischen Museum Oberkochen:

Mikroskop SZ M 28
Fabrikations-Nr. 3078 — 1 — Versicherungswert: DM 2.500,--

H. Fössel

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Carl Zeiss
- Optisches Museum -
z.H. Herrn Dr. Pfeiffer

7082 Oberkochen

Datum
19.05.1989

Auftrags-Nr.
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Nr. _____ **Lieferschein**

Stück	Gegenstand
	Bundesbanknoten
	DM 200 BBk III
1 (ein)	Mikroskop von Paul Ehrlich - in einer Lederaktentasche - zu unserer Entlastung zurück.

Im Auftrag
Rabel

Model for the microscope depicted was lent by Zeiss Oberkochen to the Bundesbank in February 1989, returned in May 1989. Zeiss document (left) notes that the objectives on the instrument were Nos. 8111 and 8950.

Both sides of the 200 Mark banknote.

Therapy in Frankfurt, later to be renamed Paul-Ehrlich-Institute. In 1908 he was awarded the Nobel prize.

In 1906 the chemotherapeutical research institute Georg-Speyer-House was inaugurated and endowed specifically for Paul Ehrlich, in order to enable him to pursue his chemotherapeutical research. In 1910 he succeeded in producing the chemotherapeuticum Salvarsan, the first successful active substance against syphilis. Over and above this, he published important papers on the proof of gall staining in urine as well as the staining of cell tissues, bacteria and nerve fibers. Methods developed by him form the basis for the production of cures for mental disorders and malaria. Paul Ehrlich died on August 20th 1915 in the Hessian town Bad Homburg vor der Hoehe.

A collector of Zeiss equipment and literature may now decide whether to enhance the collection with a 200 DM note. At this point, the bank note is probably the only object whose purchase price remains "in status quo."

I would like to thank Dr. Wolfgang Pfeiffer of the Optische Museum in Oberkochen for the information and documents which made this article possible.

LICHTSTRAHLEN

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

IN MEMORIAM

Richard Benesh

Richard Emil Benesh, a retired Department of Energy lawyer, passed away in May 1992 at the age of 73 in Davenport, Iowa after a heart attack. Dick was an original and loyal Zeiss Historica Society member. Before moving to Washington in 1960 he worked in the legal department of Collins Radio, in his hometown of Cedar Rapids, Iowa.

Dick was a lifelong bachelor: his house in Washington, D.C. looked like the storeroom of the Smithsonian Institution. He collected radios, clocks, optical instruments, and some old magazines, like National Geographic. In more recent years he added computers to his collection.

Gene Zartarian

Zeiss Historica member Gene Zartarian passed away in July 1993 after a short illness. He was 81 years old; he is survived by a son, a daughter and a granddaughter.

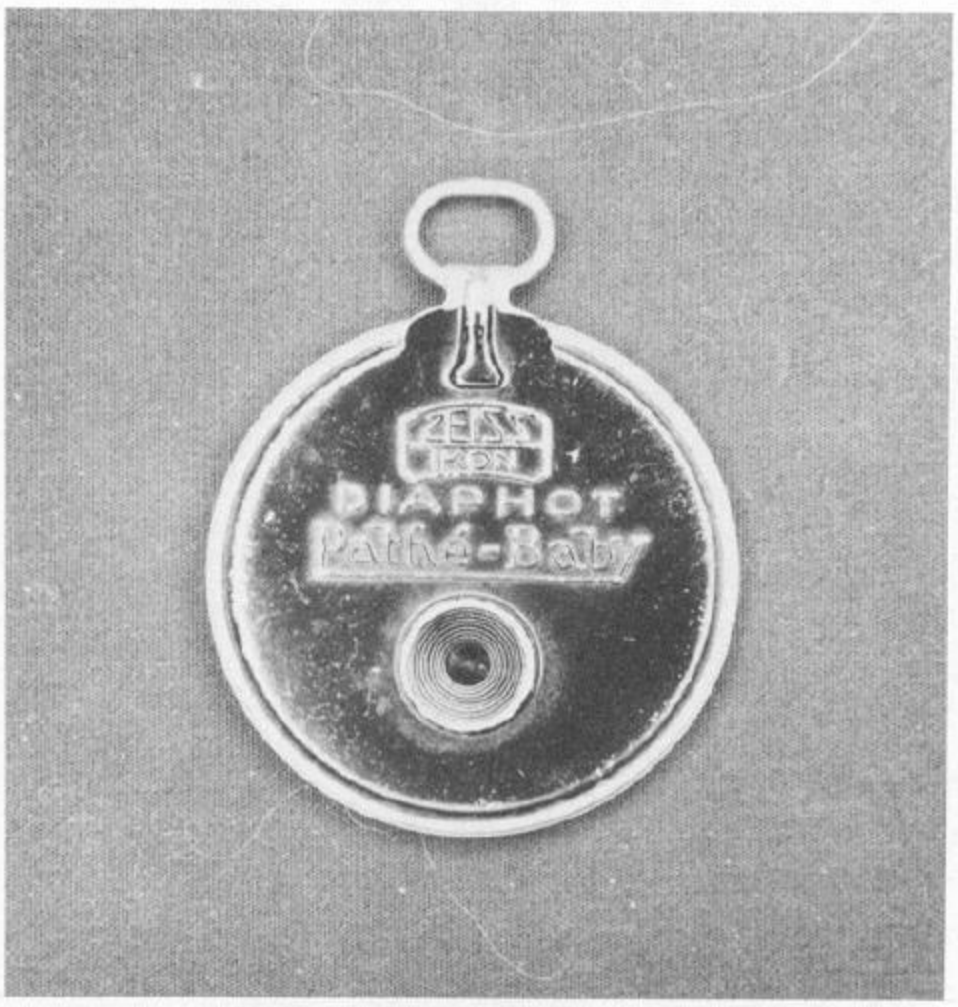
Gene was originally from Boston, Massachusetts, but spent his working life as a photoengraver in New York City, and was a resident of that city for many years.

His home in Oradell, New Jersey was filled with a rich collection of optical instruments. He was a talented repairman and restored many instruments. Gene had many good friends in the optical business field.

His articles dealing with binoculars appeared in the Fall 1983, Fall 1986, and Fall 1990 issues of the Zeiss Historica Journal.

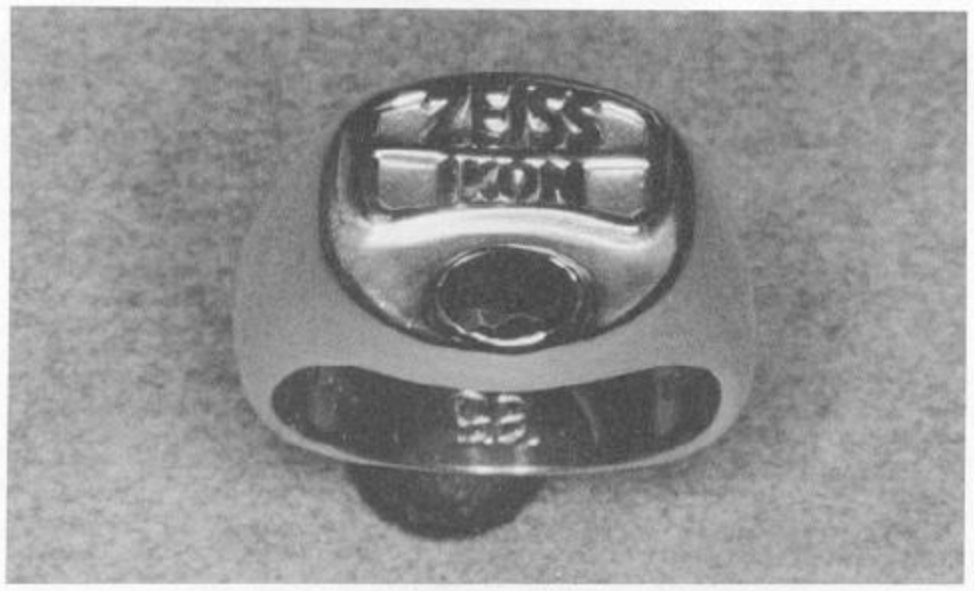
Nick Grossman

A METER FOR MOVIES



From the collection of Secretary and Treasurer Maurice Zubatkin comes this unusually marked Zeiss Ikon Diaphot exposure meter. Meter was designed to accompany the Pathe-Baby 9.5mm movie camera popular in the 1920s.

ZEISS IKON RING



Fourteen-carat gold, embellished with an oval-cut Burmese sapphire — no, it's not a treasured award from the firm, but the creation of member Greg Bedore of St. Petersburg, Florida. Greg wears it daily at his job in the International Diamond Center there, where it attracts much attention from German tourists to whom the Zeiss Ikon logo is as familiar as Kodak's is to Americans.

MORE ON WETZLAR

A small amplification of Nick Grossman's informative (as always!) paper on the Hensoldt factory in Wetzlar (Zeiss Historica, Spring 1993).

Wetzlar is richly historical from its Iron Age origin and 12th Century castle ruins through its involvement with the age of Schiller and Goethe. As befits a place of such antecedents, it continues to recognize those who add chapters to its story. Moritz Hensoldt's name graces a street which runs by his now much enlarged factory. His neighbor, Ernst Leitz, also has a street in Wetzlar named in his honor. Their common ancestor (from a business standpoint) is memorialized by the Karl Kellner Ring, a major Wetzlar thoroughfare.

Wetzlar has a small, high quality museum in the Lottestrasse where the products, past and present, of its several renowned manufacturing businesses are displayed along with cultural and artistic collections.

Zeiss Historica members on tour will enjoy a visit to this historic Hessian city on the river Lahn when they follow author Grossman's trail.

Joseph K. Brown

1933

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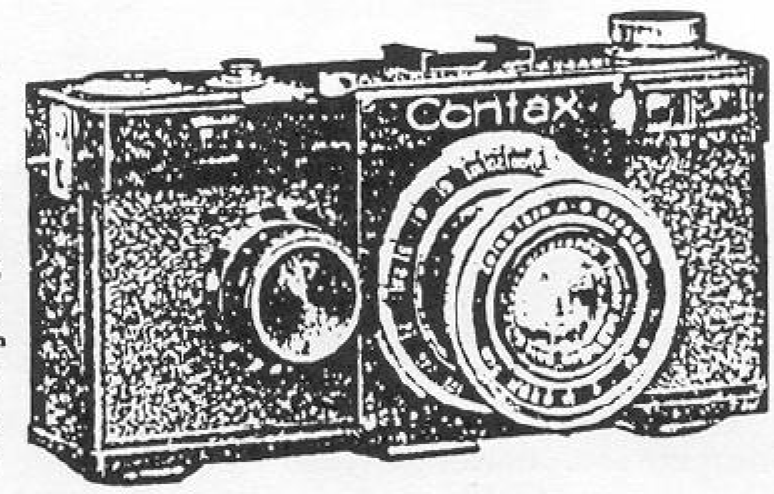

ツアイステッサー f3.6 50m/m レンズ付
メタル フオーカル プレンシヤター
取枠一、速寫ケース附屬
四二五・〇〇

同 f2.8 50m/m レンズ付
四六六・〇〇

形　狀　は近代人向きのモダンは長方形です。ファインダー距離計等は執れも破損せぬ様カメラの中に嵌込んであります。シャッター鈕、シャッター鈕其他の部分もシャッターを切つた時に動きませんから萬一どこかの鈕に手が觸れて居ても寫し損ふことがありません。

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フオーカルプレーン・シャッター　はタイム及び1/2—1/1000秒の瞬間撮影が出來ます。シャッターの幕は全部輕金屬製でありますからその正確且精密な動作が氣溫の變化に依て影響されることは絶對にありません尚シャッターの調節はシャッターを捲き上げてゐると否とに拘らず自由に調節出來るのみかシャッターを切つてからでも何分の一秒で撮つたかを見ることが出來ます。

コンタックスは長基線距離計を備へて居ります　その特別長い10糎もある鏡共線で正確な測定が出來ます、此點大型レフレックスカメラが辛うじて之に比較するものであります、その上此長基線距離計はレフレックスカメラ同樣移動しつゝある對照を追求しながら撮影の瞬間まで焦點の調節が出來ます。

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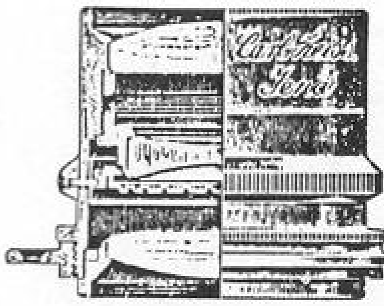
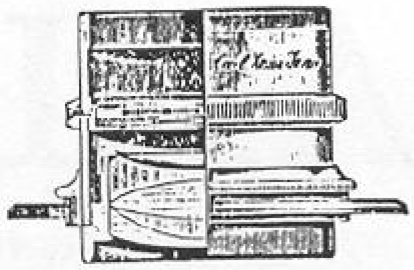
Carl Zeiss **Protar**
Series **VII** F:12.5



Carl Zeiss **Double Protar**
Series **VII A**. F:6.3-F:7 F:7.7



カール・ツアイス會社製
プロター七類及七類A
複プロター鏡玉

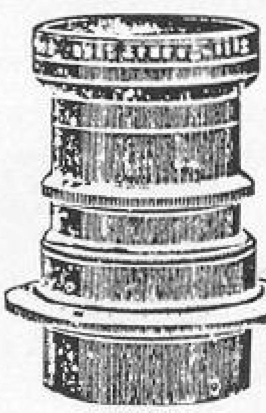
本鏡玉は四枚合せの單鏡玉で其の萬能的效用の秀絕して居る事と包括度の廣い事は普通の單鏡玉の追隨を許さぬ所である。殊に逆光撮影が極めて鮮かなので廣角の瞬時撮影、風景、集合人物等の撮影にも絕好の結果を得る事が出來る。七類プロターの二個を一鏡胴に組合せて複プロター七類Aとする事も出來る。複プロターは焦點距離の異同に依り F:6.3—F:7 又は F:7.7 の關係的寫度が新に出來る。

カール・ツアイス　七類プロター F:12.5 單鏡玉定價

番號	焦點距離	有效畫面	定價	鏡胴番號
No. 1	180ミリ	4¾×6½	Y 104.00	1番
No. 2	220 〃	5×7	〃 111.00	2番
No. 3	290 〃	6½×8½	〃 130.00	3番
No. 4	350 〃	8×10	〃 155.00	4番
No. 5	410 〃	10×12	〃 215.00	8番
No. 6	480 〃	11×14	〃 267.00	8番
No. 7	590 〃	12×15	〃 371.00	10番
No. 8	690 〃	14×18	〃 468.00	12番

カール・ツアイス會社製
テレ・テッサー望遠鏡玉　F:6.3

Carl Zeiss
Tele-Tessar

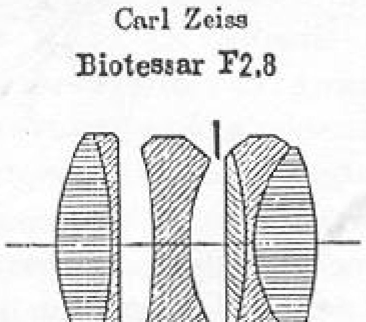


最新式の瞬間望遠鏡玉で、特に前後の構造が同形であるので、視野の周邊に於ける光線も良して薄いやうなことはない。明放しでも鮮銳な畫像が得られる。山嶽撮影、猛獸撮影、運動及び新聞寫眞班用、若しくは繪畫的遠近觀を望む人物風景撮影用に貢献する所が多い。

焦點距離	乾板の形	普通胴	沈胴	伸縮胴
12糎	1¾×2⅜吋	231.00	259.00	272.00
18	3¼×2⅜吋	192.00	198.00	222.00
25	4¼×3¼吋	240.00	246.00	276.00
32	6½×4¾吋	312.00	324.00	360.00
40	7½×5 吋	408.00	420.00	468.00

カール・ツアイス會社製
ビオテッサー　F:2.8

Carl Zeiss
Biotessar F2.8



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焦點距離	有效畫面	普通胴	沈胴	伸縮胴
13.5 cm	3¼×2¼	Y 407.00	426.00	500.00
10.5 〃	4¼×3¼	〃 481.00	509.00	620.00

1933 catalog from Asanuma & Company (Tokyo) offered wide variety of Zeiss products.