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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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^{*} Schott published a detailed 28 page booklet entitled "From Jena to Mainz - and back again" which I was able to obtain by contacting the the PR office at info.cpr@schott.com

President's letter

I regret to inform you that this is most probably the final edition of the Zeiss Historica Journal based on my prognosis as I come toward the end of my chemotherapy for my cancer treatment. There is no further successful treatment available for my situation and there is no editorial successor or authors available to the society at this time.

It has been my privilege to be a part of this process for quite a number of years and it has brought me into contact with may of the embers and opportunities to see images of many Zeiss rarities because of this.

There are a number of interesting opportunities that have become available in the last few months with regard to Zeiss personalities. They are largely centered in Germany and in German but well worth knowing about:

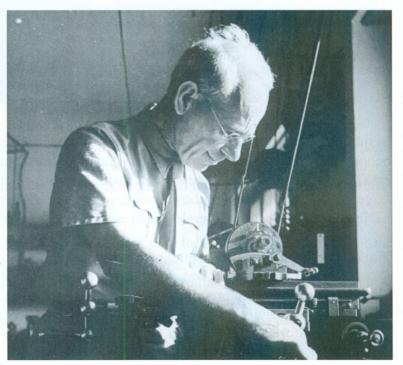
There is a new biographical book about Ludwig Bertele who pioneered the technology about many unique photographic lenes in terms of lens speed and sharpness. This book is available in traditional paper book as well as an electronic format. There are numerous photos and illustrations with many in color. The Author is the subject's son, Erhard Bertele. The list price is 46 Euros and the book version is 120 pages long but a Google search will lead you to a sig-

nificantly less expensive page. The ISBN for this work is 9783728138163

In early March 2017, The Technische Sammlungen Dresden (The Technical Museum in Dresden) opened a new exhibit under the title of "Emanuel Goldberg - Architect of Knowledge" and as a part of the exposition a special film about him will be available for viewing. The title is "THE GOLDBERG-CONDITION — More to see than can be seen." This film by Kerstin Stuttered & Niels Bolbrinker is 76 minutes in German.

The film is described as "A poetic search and scouting about a sorrowly nearly forgotten man and his fate. He was a visionary, migrant, Jew, teacher, researcher, inventor, husband, scientist, father, manager, founder, and much more." In a dialog between memories of his family, a poetic and academic research about him and his importance one can understand not only his importance for the development of visual-optical technique and media but as well how history is influencing biographies and thus, technical and scientific advances.

With regard to the front cover of this issue, I have long looked at it in a special way. It dates from June 1931 but I have also seen it on other early, large format Zeiss Ikon catalogs. Clearly, the older gentleman on the cover bears the physical resemblance to the most senior management of the firm which you can verify from the image to the right of Emanuel Goldberg. While the picture shows Goldberg some twenty plus years later in the 1950s when he was living and working in Israel. There he led a new industry and personally took a role in educating a series of apprentices who would start a new series of businesses that were the foundation of today's technical successes. The young man in the cover image is clearly is his teenage son, Herbert.



Three Contax I Cameras Explore Alaska

Larry Gubas, Las Vegas, Nevada



In the recent postings on the Zeiss Historica Facebook discussion page, we have seen images of famous people using Zeiss Ikon cameras. These included Ansel Adams, Humphrey Bogart, Robert Capa among others. There are also classic advertisements with famous photographers and explorers endorsing a Zeiss Ikon camera. However, the image above is somewhat unique. There are three strangely garbed fellows with each having a Contax I camera complete with normal lenses and the standard case.

The key to this image is the central person in the picture. He is Bernard Hubbard, a Jesuit priest who was a geologist and explorer who was also known as the "glacier priest" and was considered an expert on the physical nature of the future state of Alaska. The Jesuits are members of a religious order that prefers that its members be heavily involved in education and a specialty where they become highly expert. Hubbard studied in California and in Austria, learned and taught in the German language. He did return to the United

States in 1926 and for the next 35 years undertook regular summer expeditions all across Alaska and returned during the academic year to lecture inside and outside California's Santa Clara College and became known as the highest paid lecturer in the world according to the 1937 Literary Digest by receiving fees up to \$2,000 per lecture. He also developed his knowledge of volcanoes and added many lectures on that subject to his repertoire on glaciers, geology, and the mapping of Alaska. He also became somewhat famous for crossing the Bering Strait via canoe.

As a lecturer, he developed a skill for delivering presentations with his own pictures and movie presentations such as his before (1930) and after (1931) images of the eruption of the Aniakchak volcano. He molded images on this subject into the film, Aniakchak which was distributed by Fox Studios and distributed world wide. The use of these media grew his reputation at a lecturer and during and after World War II, he was an advisor to the US military about Alaska.



The picture on the opposite page was probably taken after 1935 since The camera on the right seems to have a chrome Tessar 5 cm lens and since he and his two companions have matching outfits, I would suspect that they are also fellow Jesuits who came as his associates or assistants on his expeditions in Alaska who used the Contax cameras to facilitate the documentation for his lectures. I could find no information as to what movie cameras that he used for his filming projects but there were many to choose from by 1930 including the 35 mm Kinamo designed in the mid-1920s by Emanuel Goldberg.

To the right is a solo picture of Father Hubbard and in his garb you can see a religious insignia above the hand to the right. This is a reminder that in spite of his personal goals of documenting the region and its climate and characteristics, he was a priest who would have brought with him the appropriate vestments and articles to celebrate his daily mass.

He would led 32 expeditions to an Alaska that was much different than today's state and would publish three books and numerous articles in contemporary magazines including the Saturday Evening Post and National Geographic. I would hazard a guess that his photo equipment would evolve over his career but here are images of the day when the Contax I (and the Albada viewfinder) to the right were the state of the art for an important person of a by-gone era but the product of the camera still reminds us of the effort.

Depth Perception and the Zeiss Teleplast

Fred Watson, Australian Astronomical Observatory, Sydney, Australia

Larry Gubas' fine article on the Zeiss *Teleplast* in the Autumn 2015 issue of Zeiss Historica answered many questions about these rare and unusual roof-prism binoculars. His detective work uncovered what appear to be four production batches of *Teleplasts*, all of very similar pattern using the Sprenger-Leman roof prism, and manufactured between c.1907 and 1910. Their representation in Zeiss catalogues supports this, their final appearance being in the edition of January 1911 after a total production run thought to be of only 350 instruments.

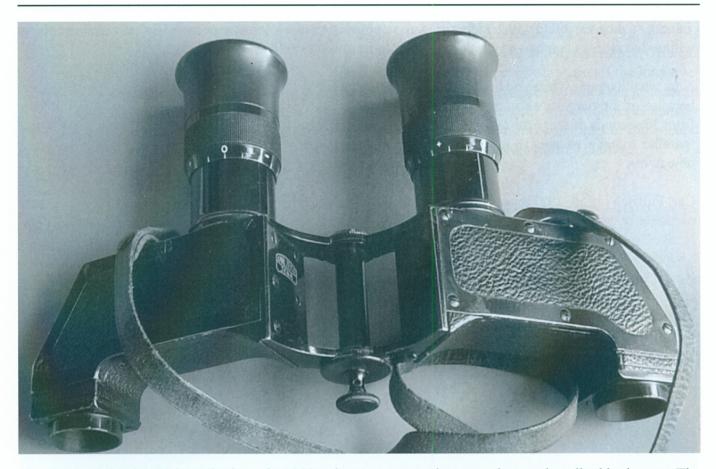
The introduction of the roof-prism *Teleplast* represented a new departure for Zeiss, since it brought a third style of hand-held prismatic binocular to their range. The two earlier ones were the familiar Porro-I prism binocular – the *Feldstecher* – in its various guises, and the larger Porro-II prism stereo-telescope with its folding arms, known as the *Relief Fernrohr*. Confusingly, when the roof-prism Teleplast was introduced, the stereo-telescopes were also branded with the same name, continuing in production for some time after the roof-prism version had been abandoned.

As Larry noted, the roof-prism *Teleplast* was sold in 3x and 5x versions. Surprisingly, they were the most expensive items in Zeiss's civilian hand-held binocular range, retailing for 230 and 220 Marks respectively throughout their production lifetime. In comparison, the large 10x Porro-II *Teleplast* was 210 Marks, while the highest-priced ordinary Feldstecher – the 12x version – was 185 Marks.

This begs the question as to why the *Teleplasts* were so expensive. Despite being bulky and heavy instruments, they magnified little more than a humble opera glass. Certainly, they were well-made, and the manufacture of their roof-prisms would have demanded a higher level of optical precision than for ordinary Porro prisms (since a tolerance of ~1 second of arc is required at the roof-edge), but would that be enough to command premium prices? Especially since the lower magnification version was, bizarrely, the more expensive one.

It's my belief that the Zeiss company's investment in the roof-prism *Teleplast* was prompted by an aspect that is mentioned only briefly in Larry's article. As he points out, the instrument's name is the clue: *Teleplast* combines the Greek root meaning 'far off' with a German word for sculpture, which is 'plastik'. The instrument sculpts the distant landscape, or throws it into relief.

All binocular enthusiasts know that glasses constructed with their objectives separated more widely than their eyepieces enhance the sensation of depth in the landscape. It was that aspect of the early Zeiss *Feldstecher* that allowed it to be patented in 1894 by Ernst Abbe (1840–1905), and also helped to ensure its early commercial success. But the *Teleplast* went further than mere enhancement – particularly in the case



The 3x magnification Zeiss *Teleplast* of c.1908, whose stereoscopic properties are described in the text. The elongated body-cells mimic the shape of the Sprenger-Leman roof-prisms within. All instruments illustrated with this article belong to the collection of Thomas Antoniades in London.

of the 3x version. Of all the instruments in the Zeiss range, it is the one that most perfectly represents the three-dimensional properties of an object under observation.

The basics of stereoscopic perception:

To understand why this should be, it's helpful to look at the details of stereoscopic perception. Most readers of this journal will know that the visual perception of depth relies on the subconscious detection of parallax resulting from the separation of the eyes. (Parallax is the angle at the apex of a long, thin triangle formed by the two eyes and the object being observed.) The brain interprets the slight difference between the left-and right-hand images as being due to parallax and deals with it in an instant, providing its owner with a strong and accurate impression of depth.

The limit to one's depth perception depends on visual acuity, and varies widely between individuals. Most people with normal eyesight can distinguish an angular difference between the images from their two eyes of 30 seconds of arc; this is called the 'limiting parallax'. When that is matched with the average separation of the eye-pupils in normal forward vision (about 65mm), we can calculate the distance of the furthest object that can be distinguished from a remote background with the unaided eyes. This quantity is called the 'radius of stereoscopic vision' and is roughly 450 metres with 30 arc-second acuity. In fact, many sharp-eyed individuals can perceive a smaller limiting parallax for certain types of objects (sometimes less than 10 seconds

of arc), so they are gifted with a radius of stereoscopic vision of a kilometre or more. Either way, everything within that radius is perceived stereoscopically in its correct location along the line of site.

Now what happens when you hold a binocular to your eyes? First, your sensitivity to parallax is enhanced because of the magnification of the binocular. If the magnification is M, then the limiting parallax falls from 30 seconds of arc to 30/M seconds of arc – a big improvement. But in addition, the base-length of the 'parallax triangle' changes. It is no longer the separation of your two eyes, but the separation of the binocular objectives.

Carl Pulfrich (1858–1927) was one of the pioneers of enhanced stereoscopic vision in optical instruments, particularly with reference to military rangefinding. He defined a quantity, B, which is the ratio of the objective separation to the eyepiece separation, and called it the 'specific plastic', or 'base magnification'. Some straightforward algebra reveals that the overall effect of a binocular on the radius of stereoscopic vision is simply to increase it by a factor of *MB*, a quantity that was known to Pulfrich as 'total relief' but was more commonly called 'stereo power' in the English-speaking world. It was frequently quoted in manufacturers' literature before the Second World War.

Thus, for a typical large 7 50 Porro-I prism binocular such as the Zeiss Binoctar with B=2, the stereo power is 14, resulting in a stereoscopic radius in excess of 6 km for most people, and well over 10 km for the sharp-eyed. It can also be seen that even in compact binoculars having objectives much closer together than the eye separation (for example, B=0.5) the stereo power MB is typically 3 to 5 depending on the magnification, which still produces a useful enhancement of stereoscopic vision.

In terms only of its stereo power, the roof-prism *Teleplast* was hardly a standout performer. The Zeiss catalogues quote a specific plastic of B = 2.77, giving the 3x and 5x instruments stereo power values of 8.3 and 13.8 respectively. But there is another key quantity in respect of which their construction is much closer to perfection.

Depth Perception in the Landscape:

Pulfrich envisaged the binocular perception of the landscape as a space image consisting of a series of planes, receding unequally in distance from the observer with regular steps of the parallax of the centre point of each plane. Introducing this concept into the mathematical analysis allows a calculation of the ratio of depth perception with a binocular to that with the unaided eyes, a quantity that we can denote by R. Once again, the algebra produces a simple result, which is R = B/M. Why is this different from the stereo power described above? Stereo power determines the absolute enhancement of stereoscopic perception, while the ratio R relates to the observer's perception of the magnified image presented to the eyes.

The appearance of the landscape as seen through a binocular can now be characterised by the value of R:

1. When R is greater than unity (i.e., B > M), the sense of depth perception is stronger than it is with the unaided eyes, and the depth dimension appears enlarged by a factor of B/M. This enhancement is easily demonstrated by looking the wrong way through one of the 'in-line' type of prismatic binoculars common today. Here, B = 1, and M is much less than 1 because of the reduction in image size. This situation also arises in the lensless 'tele-stereoscope' proposed by Hermann Helmholtz (1821–94), which consists of two



The long focal-length eyepieces of the 3x *Teleplast* dominate its somewhat ungainly appearance. The extended eye-cups are necessary because of the long eyerelief of the orthoscopic eyepieces. When the instrument is folded, the Zeiss trademark, model and serial number are revealed, and this example belongs to the second production batch identified by Larry Gubas.



In keeping with its premium pricing and fine engineering, the *Teleplast* was supplied with a polished leather case of unusual shape. This deep case is for the 3x model.



Once again, in this example of the 5x *Teleplast*, the trademark, model and serial number are stamped on the hinge-plate. All roof-prism Teleplasts have sling-loops attached to the upper surface of the body casting.

ordinary periscopes mounted horizontally side-by-side to increase the effective separation of the eyes. Here, B is much greater than 1, while M = 1 because there is no magnification of the image. In both cases, the enhancement of the depth dimension is very striking, and slightly disturbing.

- When R is less than unity (i.e., B < M), the sense of depth perception is less than that with the unaided eyes, and the depth dimension appears flattened by a factor of B/M. This is the situation found in *all* ordinary binoculars, whatever the objective separation relative to that of the eyepieces. It is most extreme in compact binoculars, where B is less than or equal to 1, but even in the normal Porro prism type, B seldom exceeds 2 (i.e., the objective separation is about 130 mm). While the stereoscopic relief of the landscape is very noticeable (particularly with the latter type), individual objects within it lose their three-dimensional quality and resemble cut-out shapes in the landscape.
- 3. The 'sweet spot' occurs with R = 1 (i.e., B = M), when depth perception is exactly as seen with the unaided eyes. This situation is hardly ever encountered in binoculars for civilian use, but is approached most closely with the Zeiss *Teleplast*.

As we have seen, the roof-prism *Teleplast* has a specific plastic, B, of 2.77, so, for the 3x model, the ratio, R, of depth perception compared with the unaided eyes is $2.77 \div 3 = 0.92$. This is by far the closest approach to perfect stereoscopic vision of any binocular made for civilian use. Its closest rivals are the large 10 Porro-II *Teleplast* (R = 0.70) and the 5x model roof-prism *Teleplast* (R = 0.55). By comparison, a standard 8 Porro-I prism *Feldstecher* from the 1907 catalogue has R = 0.22. It provides good stereoscopic perception, but with a distinct flattening of objects in the landscape (by a factor of 0.22).

Through the good offices of Thomas Antoniades, I have had the opportunity to examine the performance of a 3x roof-prism *Teleplast*, and its effect on the landscape is exactly as predicted above. Distant objects viewed through the instrument maintain their true three-dimensional proportions, with no sense of being collapsed into the flat, cut-out shapes seen with a normal binocular. It suggests that the instrument was designed with this true representation in mind for applications in which the three-dimensional shape of the target objects is of critical importance. Such applications range from architecture to zoology – and much in between.

Although the Zeiss advertising literature doesn't mention this detail explicitly, it does highlight one other significant aspect of the 3x *Teleplast*, which is its performance in conditions of poor illumination. The instrument has the maximum useable exit pupil diameter (almost 7 mm), and, with one less air-to-glass surface than the Porro-prism style, a lower light-loss. Taken together, all these various attributes would have contributed to the premium pricing of this finely-engineered but extremely low-power binocular. Finally, I wonder if the inclusion of a 5x version in the catalogue may have been Zeiss's way of ensuring that their tooling was fully utilised in the production of an instrument with a more saleable magnification?



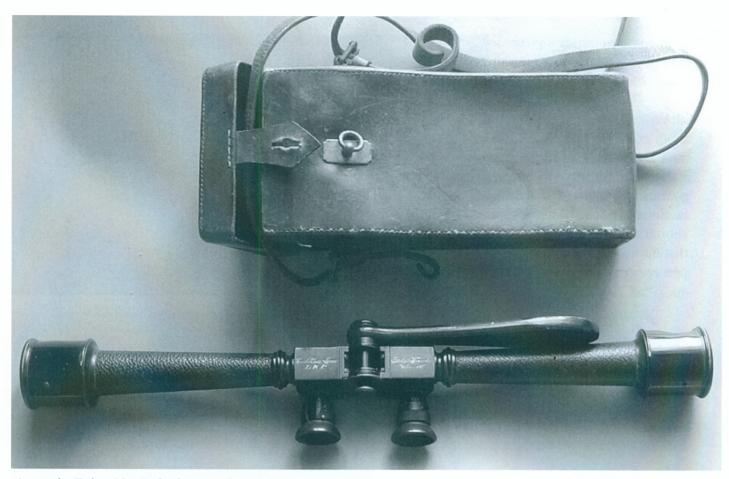
Rather better balanced in appearance than the 3x *Teleplast* is the 5x version. Only the shorter focal-length eyepieces distinguish it from its lower-power sibling.



The squat case of the 5x *Teleplast*, this time finished in black leather.



The two cases compared show identical placing of hinge, belt loops and sling loops.



An early Zeiss 10x *Relief Fernrohr*, which, with detail improvements, became the 10x *Teleplast* when the roof-prism version was introduced.



Close-up of the elegant cursive script lettering on this early model.

Carl Pulfrich, the 'father of quantitative stereoscopy' in 1899. Pulfrich worked for the Zeiss company from 1890 until his death in 1927.



Acknowledgements

I am most grateful to Thomas Antoniades in London for giving me access to his collection of instruments and catalogues for this study. It is also a pleasure to acknowledge the constant encouragement of the late William Reid in this work.

Sources

Christianson, S. and Hofstetter, H. W., 1972. "Some Historical Notes on Carl Pulfrich", *American Journal of Optometry and Archives of the American Academy of Optometry*, vol. 49, pages 944 - 947. Gleichen, Alexander, 1921. *The Theory of Modern Optical Instruments* (translated by H. H. Emsley and W. Swaine), 2nd edition, HMSO, London.

Von Rohr, Moritz, 1920. *Die Binokularen Instrumente*, 2e Auflage, Verlag von Julius Springer, Berlin. Zeiss T-series Binocular Catalogues 1896-1911.

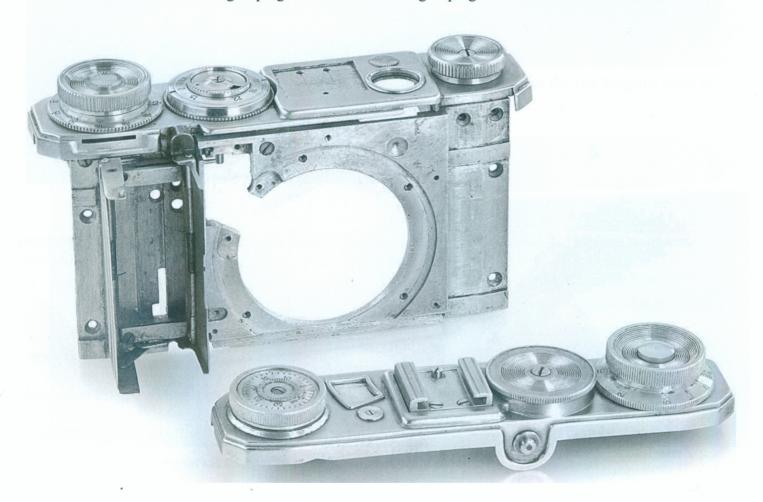
Pre-war Contax Prototypes

Larry Gubas, Las Vegas, Nevada

It is a rare event to see a prototype of any pre-war Contax camera and this past November two such examples appeared at the Westlicht Camera Action in Vienna.

The first is the second sighting of a prototype of the Contax IV camera which was first documented in these pages in our Fall issue of 2002 by Peter Hennig and Dr. Milos Mladek and secondly by a an image of this specific camera nomenclature in a US patent in our Fall 2004 issue. This image seems to show no deviation from the images from those issues but the top plates seem to have differing construction of the top of the camera in the window for the meter and different designs for the knobs as well as a slightly different top plate. These two components sold for 4,320 Euros including the auction's 20% buyer's premium.

I also found a reference in a Carl Zeiss Jena archive document that came from the Russian military stating that they wanted the design of the Contax II and III for their Kiev camera and so all of the work of the war time years was quickly cast aside as they preferred an established design rather than attempt this new design. There is no new shutter in this grouping but there was in the grouping covered in our Fall 2002 Issue.



The second prototype is a very early version of the Contax I. Westlicht's experts think that it dates from 1931. There are numerous differences between it and the first series of that camera (mid 1932) and, as we know, there are many differences or improvements to the camera over its life span including moving from a mirror based to a prism based rangefinder process. A close examination of the items could not find the typical Zeiss Ikon alphanumeric serial number.

The production camera has significant changes from this version which is estimated to be an early test camera for a new 35 mm film system which would not prove to be a market favorite. In fact, I have never seen an example or an advertisement for this film construction but since Zeiss film was not imported into the US, this is not unexpected. Westlicht describes this film using the term "Zeiss Ikon daylight spool" film which would be used for another type of product which used a cassette to protect the film from exposure to light. This film was described as having paper leaders on both ends which prompted a design for this prototype camera without any capability for rewinding the film. Because of this there is no exterior lever to disengage the film transport from which would be a lever that appeared on the camera back's bottom surface. What later would become the rewind knob is a flat disk which only alows for checking the advancing of the film transport but is unsuitable for rewinding.

The lens mount helicoid allows for near focusing at 0.75 mm as opposed to 0.85 mm or 0.9 mm in production models. The lens itself is seems to be an unengraved or unmarked Carl Zeiss Jena 5 cm F/3.5 Tessar. The infinity stop release knob of the distance meter is situated centrally in the middle of the camera front just above the Contax trademark. The later version of the infinity stop release knob would later be placed just to the right of the milled wheel focusing knob as you look at the front of the camera. It is shaped differently as it is broad and flat and the two can be compared on the following pages.

There is no spring catch for the bayonet and the stud for the lens itself. I think that the plain screw that served this purpose was a much later addition. The shape of the threaded release button is not found in any subsequent models.

The distance meter is already of the production design of the early mirror based system. It seems complete and functions but is misaligned and needs repair. (This mirror based system was clearly deficient in the mind of the designers even though it would be used in many other manufacturers devices.) The prism based system would become standard in the later production models of the Contax as well as other Zeiss Ikon cameras such as the Super Nettels, the Nettax and the Super Ikontas.

The shutter moves actively but it also is in need of repair to make it work appropriately. It was not taken apart and so the auction house does not comment on whether it was exactly as the Contax I production models.

The start price was 10,000 Euros but the final hammer price at the auction was 24,000 Euros with a lively back and forth between only two bidders.

The following pages contain my analysis of some of the peculiarities discernable in the pictures provided in the Westlicht catalog and some comparable later pictures that I have in my collection of images which I think will be of interest to you but first I will show the front as well as the top and bottom.



Autumn 2016



An early version of the Contax I above shows the dimples while this earlier prototype version (to the right) which does not have the infinity stop release as shown above and below which must account for the dimples. Another version (below) without the dimples while the prototype to the right shows the release just above the "nt" of Contax.



To the right is the sliding mask for a telephoto lens for the viewfinder. With the production models, the focal length of a lens would be engraved into the nickel metal but my intention here is to show a version of the picture counter that was free of markings but did not function as a rewind system. Below right is the picture counter with an arrow like mark on the front top while below left is a small white dot on the right end on the production version which would cause a redesign of the internal system's location. The release button is also different.









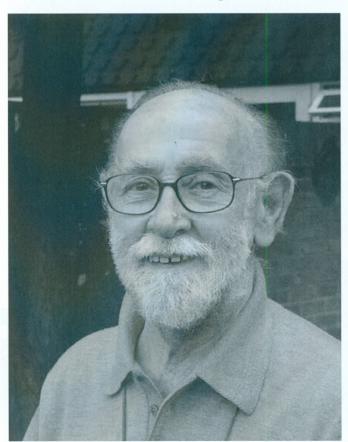


William Reid – Binocular Collector Extraordinaire

Fred Watson, Australian Astronomical Observatory, Sydney, Australia

Many – perhaps most – readers of this Journal would probably attribute their interest in the products of the Zeiss company to their own collections of cameras, lenses or instruments. There's nothing quite like a new and fascinating acquisition to pique your curiosity as to when, where and why it was made. Thus it was with William Reid, CBE, one of the pioneer historians of binoculars, who sadly passed away on 19 June 2014 at the age of 87. Bill, as he was always known to his friends, had the collector's instinct for the rare and unusual as well as the mundane, and amassed a remarkable private collection of instruments between 1980 and 2010. But his professional role as a scholar of arms and armour equipped him perfectly to enquire into the evolution of binoculars at a time when little information on the topic was readily available.

Bill had an extraordinary life outside binocular collecting, and was decorated with some of the United Kingdom's highest accolades and awards. Born in Glasgow, Scotland, in 1926, his degree course in astronomy at Oxford University was curtailed by wartime service in the Royal Air Force, and later the RAF Regiment in Germany. A succession of unrelated post-war jobs saw him gravitating steadily towards his eventual profession, leading in 1956 to a junior curatorial position under the Master of the Armouries in the Tower of London. He considered fortune to have doubly smiled on him, when, two years later, he married the love of his life, Nina Brigden, who became his 'wise counsellor, best friend and sternest critic'.



Bill Reid in 2007

Bill's rise through the ranks of the Tower Armouries was rapid, and by 1965, he had reached the dizzy heights of Assistant Keeper. He was thus poised to take up the position that filled the rest of his professional career – as the first Director of the National Army Museum in London, which he became in 1970. As he himself put it, he moved from the oldest military museum in the world to the most modern. Among his many achievements during that period was his first book, The Lore of Arms, which sold more than 164,000 copies in ten countries.

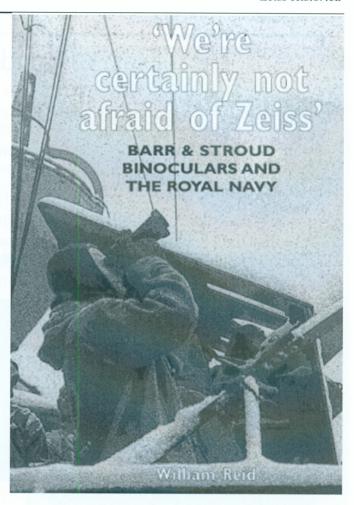
It was during Bill's time at the National Army Museum that he recognised the paucity of information on service binoculars in Britain. Four seminal articles entitled Binoculars in the Army followed between 1981 and 1984, leading him towards a scholarly appraisal of the manufacture and use of binoculars throughout the world in both military and civil applications. And, on his retirement in 1988, he continued this work, publishing his studies in Zeiss Historica and elsewhere, while

building up his own collection of instruments. By the time advancing years and ill-health conspired to keep him from the antique fairs and flea-markets he loved, he had amassed more than 750 binoculars, of which by far the largest fraction (nearly one-fifth) were the products of Zeiss factories in Germany and overseas.

Bill took a special interest in Zeiss, and, in particular, the output of their London factory before the First World War. But his heart belonged to the glasses that came from his native city – the products of Barr & Stroud of Anniesland, Glasgow. Barr & Stroud supplied binoculars to the Royal Navy, and the title of Bill's 2001 monograph on their products epitomises the company's attitude: 'We're Certainly Not Afraid of Zeiss'.

Bill Reid is much missed among the many specialist circles he moved in. He was not only an expert on arms, armour and binoculars, but also on archer's thumb-rings, military and civil history, and museums throughout the world – some of which will be the beneficiaries of his binocular collection. He was ever a genial man, a generous teacher and mentor, with, above all, a witty and wicked sense of humour. Typical is the Christmas card that many of Bill's friends received in 1998. It depicts Nina wielding a large hammer over a table laden with Barr & Stroud binoculars – his favourites. He certainly knew how to bring a smile to the faces of his Zeiss-minded colleagues.

Professor Fred Watson is Astronomer-in-Charge of the Australian Astronomical Observatory, and a lifelong optical instrument enthusiast.

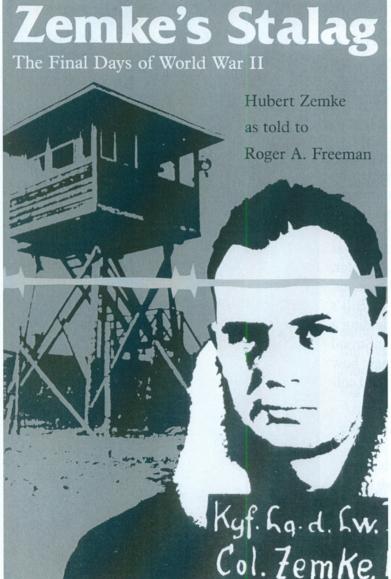




The US Army and "We Take the Brain"

Larry Gubas, Las Vegas, Nevada

Much has been made of this quotation from those few weeks that the US Army took charge of the Carl Zeiss factories in Jena. Patton's 12th Army took the area on or about April 13th 1945 and then released it to the Russian military within a day of the evacuation of the Zeiss and Schott scientific staff and management on June 26/7. This is clearly an over simplification of the events and the long, drawn out process of getting the firm back into business.



Above is the cover of the book by United States Army Air Force fighter ace, Hubert Zemke about his experiences during World War II which included his involvement in overseeing the occupation and direction of the Zeiss and Schott factories.

The separation of both Carl Zeiss and Schott und Genossen into separate firms in the two post war German states was something that is usually not documented as a process but rather reflected mostly in the resulting competition and confusion.

There was a tremendous amount of foot traffic of interested military parties and functions but this was rarely documented in a fashion for the interested historian. There are two books which do comment but they appeared in the early 1990's when more than 45 years had passed and the level of interest had become clearly lower.

One was by the celebrated American fighter pilot, Colonel Hubert Zemke who combined a distinguished reputation as an air ace supporting the bombing missions of the military and as a prisoner in a German Stalag in the last months of the war. Then he was pressed into service to oversee the situation in Jena as the Americans and the British were seeking to take advantage of possible advanced war technology within the Zeiss factory for the war against the Japanese in the Pacific Theater. It was his access to an airplane and commuting back and forth from various military headquarters to coax decisions and orders with regard to the status of Zeiss and Schott personnel and equipment. Then physically executing them on site with Zeiss and Schott management in Jena.

The second book is from an entirely different kind of person. Carl Nelson was working for Bell Labs developing products for the war effort when he joined the military in 1943. He would continue to be a part of the development of war materiel and received a commission as a Major. On May 15, 1945, he was identified as someone that the army wanted to move from the US to Germany and specifically the Zeiss Jena location to oversee situation with regard to the optical and mechanical products of the firm. The movement from the US to Europe took until June 16th which meant that it would give him less than two weeks to devote to the project until the multiple physical plants would be ceded to the Russians. While Zemke could pilot a plane to and from Jena, Nelson and his companion had to make do with a jeep and barely serviceable roads and bridges.

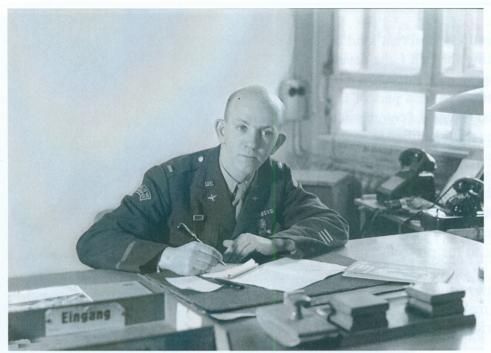
Nelson was quite knowledgeable about Zeiss and had visited their New York offices for presentations and sales meetings before the war. In deed, he would meet some members of Jena management with whom he was acquainted from these pre-war visits in New York.

When Zemke landed at Zeiss, he found a young Lieutenant named Irving Brayer in charge of the location. Coincidently, Brayer had been Zemke's photographic officer at the US Air Forces 56th Group in England. There had been a revolving door of higher ranking officers over Brayer in Jena but they rotated out within days. Consequently, he was being continually challenged with difficult political and logistical decisions and was happy to have Zemke to report to even if only temporarily.



Carl Erwin Nelson

Both Zemke and Nelson were well aware of the February 1945 lines of the World War II demarkation that were established by the Yalta conference where both Jena and Dresden locations would become part of the Russian zone and that the US would soon hand over the Zeiss and Schott factories. It had been decided that the US should try and gain what could be had before June 30th and time had already brought this action to a very small window of opportunity. Zemke and Nelson would meet with the board of management and senior scientists of the two firms and conveyed to them that the movement to the western zones was coming and there was no fighting that movement since it was a lawful military order and would include the immediate family of those selected and that these after hours meetings were just a formality to select those who would be transported. There was little resistance from the Zeiss and Schott personnel as many feared the actions of the Russian troops as there were many rumors of mass rapes and war reparations spreading through their Eastern portion of Germany. There were already large bands of people fleeing the area via any means necessary including animal drawn carts and people heading west on foot. Indeed, once there were opportunities for work in the western zone, workers and families would undertake the dangerous journey themselves.



← Lieutenant Irving Brayer is shown in his office in the Zeiss "Hochhaus' (literally high house) office building. He would welcome various military investigation groups who would evaluate products for seizure. There were also many individual GIs who would take advantage of the war reparations opportunities as well as purchase situations. Zemke mentions that a pair of Zeiss binoculars were for sale at the price of \$13.50. Brayer had the ability to ship materials back to military and personal addresses in the US.

These two books and authors are quite different in character and scope. Zemke's book is 144 pages with portions of 15 pages covering the Jena period while Nelson's is three volumes with 1081 pages with about 100 abut the Zeiss/Schott situation. Both books were published in 1991/1992 respectively. Zemke's was from memory to a ghost writer (Roger A. Freeman) for the Smithsonian Institution. Nelson was based on his entries to his personal daily journal and was privately published by his family. The material is certainly more detailed with Nelson but both seem to mesh nicely.

There were a series of meetings in the late evening to review the lists of key management, design and scientific personnel to be evaluated. Each member of the Board of Management had prepared one for his area of responsibility. Zeiss went first and Schott brought a list as well. Schott had been preparing a dispersal of their optical glass operations but most of the active optical glass sites were in the anticipated Russian zone but, during the war, preparations were made to start operations at Zweisel near Munich. Zeiss had other firms in the west but they were stand alone firms such as Hensoldt, Winkel, Gauthier and Deckel and except for Deckel there was no available floor space. Colonel Zemke had flown Dr. Küppenbender to Munich to inspect Deckel but there had been a 40% loss of factory space due to bombing and so the one place that would serve the Zeiss evacuees would not work out. So, things went forward with the Jena people not knowing where they would be going. Interestingly, there were two unexpected visitors at these meetings, two British officers came to ask permission to listen in to the proceedings and were accepted but only audited the meetings without active participation. Of course, no one would be surprised if there were a few Russian operatives in town as well.

Both Zemke and Nelson took the results of the meetings to senior officials. Zemke took his report to SHAEF in Paris and Nelson to those to whom he reported to in Frankfurt. Both were given verbal approvals for this evacuation but were told that there would be no written orders with regard to this manner. They swiftly returned to Jena where the approvals had been assumed and the transportation and the dissemination of information was organized. Colonel Zemke, Colonel Stone who was organizing the materials (trains, trucks, etc. to implement the evacuation) and Major Nelson agreed on a night session to clarify status.

The meeting summarized the activity so far:

- 1. All people had been notified who had been on the lists previously mentioned. Local orders were cut.
- 2. All lab apparatus necessary to carry on research was marked and packed or in the process of being packed. About half or two-thirds was already packed and some had been sent to the airport but it was intended that all should go by train and truck.
- 3. All necessary technical information had been located, they thought, either in original or microfilm. In accordance with an earlier agreement, no originals would be taken but copies of them would be made and taken for the use for people in the American zone. That meant that a huge copy problem and the print facilities were going at top speed and continued for two more days.

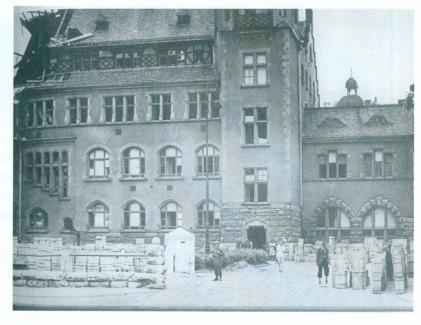
Zemke also reported that Zeiss controlled more than half the shares of Hensoldt und Sohne in Wetzlar and that two additional men from the Jena works would be dispatched to work as directors at that firm.

To the right is an image of the Jena Volkshause and town library which is directly across the street from the Zeiss Hochhaus. You can see the wooden boxes of materials that were packed for the move to the American zone. A single American soldier stands guard.

These buildings were erected as a gift to the town by Dr. Ernst Abbe along with many other improvements to the life of the town including a large bathhouse that not only offered a location for hygiene but also a large swimming pool for recreation. These building had become the center for town activities over the years. You can see in the upper left hand corner of both pictures that there was significant bomb damage to the roof and upper floors of the structure that had not been repaired as had the damage done to the factory itself.

Both of these books seem to indicate that the lion's share of the items packed in these boxes were documents of a technical nature without any machinery or devices that were intended for use in a production environment. Based on the size of the boxes, certainly none of the typical machinery found on the floor of the factory is so small as to be able to fit in any of these packages.

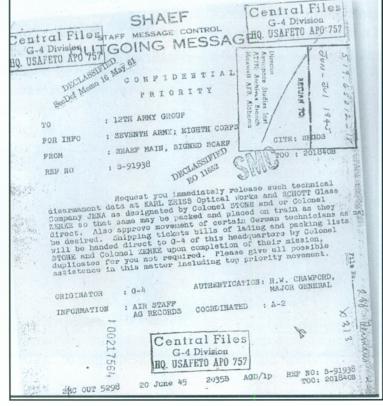






As a testament to the size of the machinery and the need for floor space, I offer this picture of a typical work area to show the size of the typical work station within the Zeiss factory in Jena. The devices shown would not have been broken down or transported in the size of the boxes shown outside of the Volkshaus. In any case most of the materials shown packed on the previous page seem to have ended up missing since the nature of the military was concentrating on being discharged and sent back to civilian life and finding someone to make a decision was difficult since no one wanted to get into a long term situation.

In the week after the preparations for the evacuations had been set up, Brayer informed Zemke that a small Russian advance party had set up residence in a local hotels. Unaware whether the US authorities had made their removal of the Zeiss people known to the Russians, when two Soviet officers appeared at the main gate and demanded admittance, Zemke decided to take no chances. He told Brayer to bring them to his office. Whatever their intentions, he felt they had no bearing on his current responsibilities. He set out to get rid of them and stall. After, introductions, they sat down and they insisted that they were an advanced echelon from the Red Army conducting a survey of the area that their forces would shortly occupy. This visit was to inspect the factory and talk to the management. Zemke thought for a moment about their request and then asked for credentials, particularly written letter designating them to reconnoiter the Zeiss factory.







To the left is a copy of the overview order that Zemke brought back from SHAEF in Paris and to the top left is a contemporary picture of Zemke. For years, both gentlemen would be involved in seeking out the whereabouts of the wooden boxes that seem to have been misplaced and never made it to Heidenheim. to the right is a picture of them again forty four years later when they were invited to the 1989 celebration at both Zeiss and Schott of the 100th anniversary of the Carl Zeiss Stiftung. Their two books would be published soon after.

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they had none apart from their Soviet identity cards. He courteously informed them that because of recent intrusions and looting at the factory that he had strict instructions not to permit entry to anyone, Allied or German without the proper written authority.

On June 26 and 27, a fleet of trucks supplied by the VI Armored Corps carried out the movement of 435 individuals (81 Zeiss individuals with 202 family members and 43 from Schott plus 109 dependents). Both Zemke and Nelson, by the way, were about to move but for radically different reasons. Nelson was sent to Zeiss because of the situation but he was to be the lead military person to facilitating the resuscitation of the German optical industry in the western zones of Germany. In this capacity he would interface with Leitz, Schneider, Kodak, Deckel, Steinheil, Rodenstock, Voigtlander, Zeiss Ikon (Stuttgart only but the Goerzworks as they were reconstructed) and Franke & Heidecke. Zemke was a totally different story. SHAEF had received a phone call from the commanding general of the US Air Forces saying that he wanted Colonel Zemke out of Germany and back to the US within 48 hours. His name had been mentioned by the Russians at a four power conference in Berlin where they were evidently far from happy that the best of Zeiss had been snatched from underneath their noses. Questions were also being asked on the allied side as to just what a fighter pilot was doing in Jena and under whose authorization. Zemke drove to Paris and was on a C-54 transport bound for the US before the end of the day. Nelson would serve for another year plus in his position in both Frankfurt and Berlin and Zemke would continue a distinguished career in the Air Force. The movement of the Zeiss and Schott people toward productivity would be much longer than anticipated since the Pacific war action would come to a climax in August and Heidenheim based housing and factory space was difficult to secure. There were political factors as well. Much of the previously pictured packed wooden boxes would be judged to be production material and either held back in Jena or sent either purposefully or in error to Wright Field in the US and "misplaced."

There was a post war plan offered by US Secretary of the Treasury Henry Morgenthau that had recommended that the Allies create a post-war Germany with all its industrial capacity destroyed and reduced to a level of subsistence farming. This certainly brought fear for these productive scientists and designers and the great delay in resuming business activity which was further mitigated by having the firm's most senior managers being removed for a period of time for a process defined as denazification. However, that plan was soon abandoned as unrealistic. Unfortunately, many senior staff who had been forced to be members of the Nazi party were temporarily suspended under law number 8 governing the non-employment of Nazi party members. Many of these deportees were soon offered employment or contractual opportunities in England or the US including the military which were clearly attractive and taken advantage of.

For a bit of flavoring, I offer here a condensed version of a small journal entry of one of the evacuees: **Dr. Karl Rehm** (Head of Schott Chemical Laboratory) his notes on the evacuation from Jena:

Wednesday, June 20, 1945 - 3:30 PM I was ordered by the Personnel Department to the Schott exhibition room along with about 50 others. 4:15 PM American Air Force Colonel, Stone, appeared and explained that the 50 people on the list that he read aloud were, by order of the Allied Command, to be deported with their nearest relatives and their possessions to the South (perhaps in the vicinity of Munich) in American trucks within 24 hours at 6-12 hours notice. If we refused, the matter would be handed over to "another section" No refusal was expected, however. The US Army assured us that we would be given room and board. There was no intention of deploying us for hard manual labor. We were not considered to be war-criminals. After arriving in Southern Germany, a decision would be made concerning our future deployment, whether in the USA or England, or whether we would be granted permission to return. The names were

allegedly compiled by the Intelligence Service and was created in Paris. No information could be given regarding the future existence of the plant and its unique foundation. The list contains the management, department heads, many scientists, foremen and specialists. So I started packing in the evening and throughout the night.

<u>Saturday June 23</u> - I was informed in the evening that we can expect the deportation to begin on Sunday or Monday. We will be given 2 hours to pack.

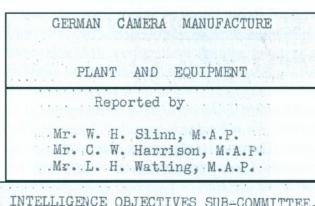
<u>Tuesday Departure June 26 - 8:00 AM</u> Met at the Zeiss plant, went by car to Humboltstrasse and assigned to cars and driven home. <u>10:05 AM</u> said goodbye to parents. <u>12:25 PM Departure</u> He kept track of the key locations along the route. <u>11:25 PM</u> Arrival Heidenheim and accommodated in police barracks, very good weather as far as Heidenheim but streaming rain at night. Dr. Calsow (Zeiss Chemical lab) welcomed us and finds us a place to sleep. Professor Bauersfeld was in the same room.

This allocated location had only recently served as a prisoner of war camp for Russian and Polish military and was clearly not what the Zeiss staff had anticipated. It would take months to find acceptable housing in the area for the Zeiss people while the Schott people would be moved reasonably quickly to an area where there was a satellite factory clearly in the US zone in Zweisel which was not close to Heidenheim where housing was possible and where some preparations had been made to allow creation of optical glass.

Some vacant space was found in a small town named Oberkochen but the town was not developed for industry but would become fertile ground for the future. It would take until 1954 for the firm to reach an acceptable level of profitability. Until then, compensation was allocated on an as needed basis and the full application of the Carl Zeiss Stiftung and its possibilities to be realized.

There were also a lot of visitors coming through the Zeiss and other optical factories over the period of the US army occupation. Most of it looking for especially designed devices that had given the German firms an edge in manufacturing but it was discovered that the apprentice programs and training that gave the firms the superior workmanship. much of it was walk through but the US and British did formal written reviews/interviews in reports from the British (BIOS) and Combined (US and UK) Intelligence Objectives Subcommittees (CISCO). I have been fortunate to find a few which I will list here and picture the title page:

- 1. Report on the firm of Carl Zeiss Jena, 150+ pages highly detailed with salary and training program (CIOS)
- 2. The Carl Zeiss Complex, 50 pages, History, personnel and factory locations
- 3. Report on the Optical Industries in Germany, 25 pages, war products (CIOS)
- 4. German Camera Manufacture, 23 pages, various firms (BIOS)
- 5. Voightlander und Sohn, 9 page wartime products (Voigtlander was misspelled in the report title)
- 6. Optical Glass Manufacturing by Schott (CIOS)
- 7. Zeiss Aspheric Grinding Machine (CIOS)
- 8. Zeiss Made and Used Lubricants (CIOS)
- 9. Production of Binoculars by Carl Zeiss (CIOS)
- 10. Pots used in melting Schott Optical Glass (CIOS)
- 11. Optical Grinding and Centering Carl Zeiss (CIOS)



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Color Gallery

There are two rare Zeiss binoculars that I have seen that reflect designs from the pre-WWII years. The image to the top left is a "Feld-stecher" era design that is marked Opernglas 3x with a brown painting and the script trademark that was replaced with the lens cell version in 1903. I have found no example of a 3x in any catalog or advertising.

In the middle left is a Telita model which first came to market in 1923 and was a typical black example. This brown example could have been a test example for the factory or a special order. (Yes such thing were possible in those days.)

Below is a display window or counter sign for the Teleater opera glass in the Dutch language. It is in black leather but color decoration.





Message to the members of the Zeiss Historica Society from the Treasurer

You may already have read President Larry Gubas's opening to his "President's Letter" in which he tells us that this is the last issue of the Zeiss Historica Journal. The Society has to wind up its affairs after distributing the current issue. With Larry in very poor health and me in my eighties there's no-one left to run the organization.

We owe Larry a great debt of gratitude for his contributions to the Society from its earliest days until the present. When I had to end my fifteen-year service as Editor recently Larry nobly added that role to his already busy responsibilities, despite his increasingly difficult medical condition. Now his treatments are so severe that he has -- regretfully I am sure -- had to call a halt.

As Treasurer it falls to me to deal with the final wrapping-up of the financial details. Not-for-profit businesses like ours may not divert funds to individuals involved in their management, and over the years I have been able to follow the usual rule-of-thumb for not-for-profits, that reserves equal to about two-years-worth of operations be maintained. You may recall that I recently declared a "dues holiday" when we gave you all a free year.

We are therefore left with substantial funds in the ZHS accounts to be disposed of. I have decided to revert this sum to the membership, whose contributions, as membership dues, created it in the first place. I will not know the value of each share until I know how many members will claim their share and what the ZHS bank account stands at after the expenses of this issue are known. I need to have each of you wanting to claim a share to write to me specifically asking for that. You can do this either by postal mail or by email:

By postal mail. Send this letter to me at

John T. Scott 4507 Mountain Path Dr Austin TX 78759 USA

Add the words "Please include me in the Zeiss Historica Society funds distribution" and sign your name. The cheques will be drawn in US dollars on the ZHS bank account. Please make sure to add the address where you need to have it sent.

By email. Write to me at <u>john.t.scott@sbcglobal.net</u>, Put in your message the words in quotation marks above, and make sure I have your name and mailing address.

I will wait until mid-June to receive all your responses and make the final calculation.

Finally, you will realize that it is with sadness that I have to make these arrangements. The Zeiss Historica Society has been good to me over the years, and I hope to you too. I have made friends all over the world and learned much about the activities of the Carl Zeiss businesses during that time. May you maintain your interest in all things Zeiss and remember how the Journal served to hold that interest.

John T. Scott Treasurer, Zeiss Historica Society

ERRATA FALL 1992

Page 5 Many, many thanks to Siegfried Kessler for arranging our wonderful seats for the concert at Neresheim. To listen to baroque music performed in its proper place is a special experience, indeed.

Page 8 Caption should read, "Folded Unica bears resemblance to small Linhof Technika."