Subject: Koblenz meeting
From: Peter Abrahams

The third meeting of the Binocular History Society, in Koblenz, Germany, 3-5 September, 2004 by Peter Abrahams

Friday, 3 September 2004.

The Wehrtechnische Studiensammlung Koblenz is a large museum of German military technology. The optics section had several dozen optical instruments on display, including binoculars, rangefinders, and the 200mm Zeiss binocular. We met on Friday morning in a large room, up several flights of stairs, which rapidly filled with optical instruments and about 70 persons. A highlight of the meeting was the chance to discuss and display old binoculars, which occurred during breaks over the next three days. There were hundreds of binoculars on display, perhaps half for sale and half just to share. A significant contribution to the meeting was made by representatives of manufacturers, (in alphabetical order), Fujinon, Leica, Minox, Swarovski, & Zeiss. The Minox rep brought a case with about a dozen of their current models, which were excellent quality. There were a few Leica models, notably two new compact models. A new Zeiss Victory 8x40 gave particularly excellent images. Swarovski apparently has a collection of old optics, as one of their reps brought a Hofmann, Paris, prism monocular, from the 1860s. Fujinon's contribution is discussed below.

There were also papers on display, not a very large selection, but a very nice contribution was made by Hanke Jark, who reprinted and gave away two booklets, 'DF 7 x 40 Bedienungsanleitung', and a second, which was gone when I arrived. R.C. Gregory brought a single copy of his just-published book, 'Binoculars of the 20th Century', a hard bound pictorial book on several dozen of the most interesting binoculars, but no distribution information was available at the meeting.

We opened with introductions from Dr. Wirtgen of the W.T.S.; Hans Seeger, Peter Abrahams, and Walter Besenmatter.

Presentations followed, first by Peter Abrahams, 'The First 300 Years of Binocular Telescopes, examples of binoculars from 1600 to 1900.'

Dr. Wirtgen described 'Die Wehrtechnische Studiensammlung des BWB, ihre Organisation und die Aufgaben in der Gegenwart und Zukunft.'

Larry Gubas showed a large number of images of Zeiss advertisements and catalog illustrations for his paper: 'Progression of Zeiss binoculars, demonstration of early advertising and company publications.' Larry included some early advertising from Goerz, Voigtlaender, Hensoldt, & Oigee. Unusual Zeiss sources included 'Zeiss Notizen' - information for retailers, and Zeiss advertising for military binoculars. Larry also described the Zeiss Historica society (http://www.zeisshistorica.org/); and showed a copy of his new book, 'An Introduction to the Binoculars of Carl Zeiss Jena, 1893-1945.' This paperback, of about 250 pages, will soon be available for sale.

Our host at the WTS, Lothar Simon, gave a talk on 'Fuehrung durch die WTS, Hinweise auf die optischen Exponate und die entsprechenden Pulikationen der WTS.'

Next, the attendees all introduced themselves and provided a few words on their interests. This was a very useful half hour, when I identified many of the persons I had heard & read about over the years.

Hartmut Lange is an Optiker-Meister (optician) who has worked extensively with Seeger on early binoculars; and the highlight of this period was when Lange presented Roland Leinhos with the replica 'Steinheil Konus' he had fabricated. (C.A. Steinheil produced, in 1833, a

'Sehkonus', a short conical tube of one piece of glass, the larger end convex and the smaller end concave, which could be used as a simple low power telescope. Lange made a shorter & wider cone, for a 'wide angle' Konus', with the straight sides of the cone painted with wrinkle paint.)

Fan Tao's Powerpoint presentation was next, on 'Wide Angle Binoculars: An Overview of some Classic Models and Challenges for the Future'.

Holger Merlitz gave an overview of his methods of evaluating binoculars, 'Fernglastestung Kriterien für eine vergleichende Bewertung'. Holger gave a good introduction to binocular testing, from which I recall his point that sometimes when a binocular with small exit pupil is thought to be sharper, it can be because the user has undiagnosed astigmatism that is revealed with a larger exit pupil.

Friday's session was concluded with a lengthy discussion, in German, 'Kurzvorträge der teilnehmenden Optik-Firmen: State of the art: Die Fernglas-Modelle der laufenden Produktion, was nicht im Prospekt steht'.

This opened with a statement by Hans Seeger, in German with an English summary, concerning the level of quality in current binocular production. To summarize: Relatively few persons have looked through a high quality binocular in good collimation. Tests show that many binoculars in shops are out of collimation, though not including those from the best quality manufacturers. A binocular out of collimation is useless, and without advice, the user is unable to test collimation. Why are there no advisors in optical shops? Suggestion: offer binoculars that can easily be collimated by the user. Why are there no effective advertisements & promotions for binoculars. More people should get the feeling, that they really need a good binocular. Requirements and specifications for future binoculars were discussed.

After this introduction, general discussion among audience members continued, as described in the program: 'Podiumsdiskussion: Mitarbeiter optischer Firmen und Teilnehmer: Ferngläser heute und in den nächsten Jahrzehnten. Was bleibt zu tun, was wurde vergessen, was sagt der Fernglas-Historiker?'

Seeger showed a collimation checker built by Hartmut Lange, based on a design found in the literature. This is a small box that is sized about 10cm x 2cm x 2cm, to set over the eyepieces of a binocular. Two windows allow entry of light from the two eyepieces. Behind the left window is a mirror set at 45 degrees, behind the right window is a semi-reflecting mirror set at 45 degrees. Light from the left ocular strikes the mirror set at 45 degrees, and is reflected to the semi-reflecting mirror just behind the other eyepiece. Light from the right ocular passes straight through the semi reflecting mirror. Images from both eyepieces reach the right eye. Light from the left side passes throught a green filter. Light from the right side passes through a red filter. The user chooses a small object in the field of view, and observes, with the right eye, two images of this object in two colors, either superimposed (if collimated) or slightly offset (if collimation is off).

Roland Leinhos, replied with a story about how he makes a monthly trip to the university, normally carrying an 8x20 in his pocket, and the neighbors will say, 'I want to look too'.....at which point Leinhos switched from English to German. He also noted, to readjust the system in an optical shop is difficult to do while maintaining warranty conditions.

Franz Erler of Swarovski said that a simple collimation system would be of interest to us.

Hartmut Lange said that he has a special system for industry to use with a collimator, using a 'biprism in rotation' on one side, and the other side is normal. Lange also showed a lens mounted in a handle, the lens had been polished with strong astigmatism, but the function was not understood.

The factory representatives provided their perspective and briefly introduced their new models at this time.

Kurt Becker described the new Zeiss 'Victory' binoculars, with reduced chromatic aberration, with Abbe Koenig prisms 'as usual' using total internal reflection. The 32mm

model uses Pechan prisms, which are do not permit total internal reflection, and so utilize a special coating on the prism faces.

Tilman Taube showed new Fujinon models, which are not always the same as U.S. introductions. The most unusual model is not in production, but was made as a prototype for a possible military model, developed for the British Navy. He showed an 8x50, based on a 7x50 housing, with bayonet mounted eyepieces that were replaceable. This was a 'day vision' & 'night vision' model, using image-intensifier eyepieces for night use. They can use a variety of image intensifiers, of varying quality and price. Using generation-2 class image intensifiers (which cost 1,000 Euros each), the probable price for the binocular would be 8,000 Euros. Also manufactured was a prototype 25 x 150 with 'Day & Night Vision'.

Philipp Syr introduced Leica's new models, including waterproof miniature models, and a laser rangefinder built into a lightweight binocular, for hunters.

Friday closed with some free time for touring the museum's collection. The 200mm Zeiss binocular had been placed outside, giving a view of the city; but in the bright glare, being unable to move the binocular, it was difficult to evaluate the image.

Friday evening was our group dinner. An interesting discussion was held with Walter Besenmatter, on the post-WWII development of binoculars by Zeiss. After the spectacular wartime models, postwar Oberkochen production was marked by very short eye relief, and the question was raised, as to why such marketing decisions were made. WWII designs were not used primarily because the division of the company left it unable to quickly resume production. 'The brains' went to Oberkochen .... but just the brains. In the West, manufacturing and business procedures were developed from a blank slate. Longer eye relief cannot be attained by simply adding a new eyepiece, it requires redesign of entire binocular. It took until the early 1960s to develop long eye relief models. Finally, the superiority of WWII designs was not a 'given' to Besenmatter, though the details of this were not elaborated and the meaning left unclear.

Most attendees stayed in the small town of Guls, a few kilometers from Koblenz. A very picturesque old town center included old churches and views of surrounding hillside vineyards.

Saturday, 4 September 2004.

On Saturday, after an hour of visiting and viewing, Jack Kelly spoke on 'Mechanical designs over the first 20 - 30 years of mass production', showing many images of early binoculars to illustrate the variety of solutions to mechanical problems of producing a binocular.

Steve Rohan followed, showing a DVD, 'The different versions of the Zeiss 8 x 60', in which a chronology of these models was presented, with a video clip of each model and a description of its features. Included was the Askania 8x60, designed as a case with two monoculars, on a gimbaled mount, an excessively complicated design that is difficult to take down. The case is not waterproof, however, the optics are very good, wide field, with low distortion. Also shown was the double 8x60 HT, from the Prince Eugen cruiser, a pair of binoculars at 90 degrees to each other, with very large prisms, and a very complex design.

Terry Vacani was the narrator and demonstrator of the next video, 'Explanation of the disassembly of a Zeiss 25 x 100 and the similar rangefinder mounted 12 x 60.' Cleary shown & explained was the Cardano circle, used to adjust interocular distance. The prism and eyepiece move together, and the light path through the prism is doubled back on itself, so movement of the prism in any distance will cause the light path to increase or decrease twice that distance. The Cardano circle moves the prism half as far as the eyepiece is moved when adjusting interocular distance.

Roland Leinhos was the next speaker, 'Die ersten Militärmodelle aus Oberkochen, Kurzvortrag mit Diskussion.' The talk included the telescopes 15x75, 15x75 45 degrees offset, and the 15x75 with 110 degree field using a very unusual eyepiece of Leinhos' design (29 of these were manufactured.) Diplom-Physiker Roland Leinhos was a leading optical designer at Zeiss, first in Jena, where he studied from and worked with Horst Koehler, developing the first post war Deltrintem, and improved test procedures for binoculars. Koehler left Jena for Oberkochen in 1951, and Leinhos followed in 1952, where he designed Oberkochen-produced military binoculars, including a post war 8x60, and civilian 6x20 and 10x25 models. After a career at Zeiss, he worked for the Bundeswehr, monitoring the development of binoculars, telescopes, U-boat periscopes and laser range finders. He is now retired.

Michael Simonsen gave a presentation on 'Military handheld binoculars in Danmark 1900 - 1945.' This will hopefully be posted on Mike's web site, and / or published in a book.

Bernd Leisse described the optical collection of another German military museum, 'Das Museum für Historische Wehrtechnik in Röthenbach - die Abteilung 'Optik'.' This talk included several unusual instruments, including a reflecting telescope by Busch, marked 'cxn', probably for aircraft spotting. If recollection is correct, there was also an instrument marked 'Goerz - Budapest'; one of a number of very unusual Goerz binoculars at this meeting that were not inspected due to limited time (a Galilean marked 'Goerz - Pozsony'
was noted.)

A 'silent auction' sale followed. Some attendees had brought binoculars for sale, and in total there was a very large number of sales items. I do not know of any great bargains, but there were some quite unusual models that are rarely seen in the U.S.

After 90 minutes of sales, Karsten Porezag spoke on 'Zur Geschichte der militärischen Präzisions-Optik aus Wetzlar - am Beispiel des Richtkreis-Kollimators.' Porezag is the author of 'Hensoldt: Geschichte eines optischen Werkes in Wetzlar'. Although this lecture was not comprehensible to those who spoke only English, Porezag is a highly animated speaker who entertained us all.

Walter Besenmatter was a leader of the Zeiss binocular design group in Oberkochen, and a designer of binoculars from the 1990s, now retired. He has published in SPIE, JOSA, and other journals. Besenmatter gave the next talk, 'Die ersten Dachkant-Prismensystem aus Jena und Wetzlar: Die damalige Patentlage und die Frage der Priorität.' This paper was a highlight of the meeting, a very detailed review of the development of roof prisms, and thoroughly illustrated to allow English speakers to follow the presentation. The first known roof prism was by Nachet, for a microscope, published in Comptus Rendus, in 1843. Sang patented a roof prism in 1876. The Zeiss Dosenfernrohr used an Abbe roof prism and the design is thought to have been completed as early as 1894.

Richard Faltermair works in the Armeemuseum Ingolstadt in Bavaria, and spoke to us about 'Die Beschaffung von optischem Gerät in Bayern und dem Deutschen Reich bis zum Beginn des 1. Weltkriegs,' the acquistion of binoculars by the German and Bavarian Army.

Wilhelm Heger gave a presentation on 'Historische Vermessungsoptiken, ein vernachlaessigtes Interessengebiet,' the development of telescopes used in surveying instruments. This is a very interesting aspect of the history of telescopes, involving some of the important developments in reticles and adjustments for parallax. Heger is a university professor of surveying.

Saturday evening was 'Museumsnacht' at the WTS, with displays, re-enactments by soldiers in period uniforms, food, and large crowds. The 200mm Zeiss binocular was available for use after dark (viewing a fixed, terrestrial target). Some of us adjourned to a quieter venue for conversation and admiration of old instruments.

Sunday, 5 September 2004.
Sunday morning opened with some free time for viewing displays and visiting.

Thomas Antoniades presented some 'Remarks on the numbering and production data of early Zeiss binoculars,' sharing with the audience his investigations into Zeiss serial numbers and what they reveal about production over time. Zeiss put a 'Privat Nummer' on some binoculars, which in addition to serial numbers are clues to production, retailing, and dating of instruments. Vulcanite eyecups and the format of name engraving are also clues for dating. (Antoniades' files are found on Peter Abrahams' web site)

Wolfgang Wimmer, the archivist at the Zeiss factory in Jena, described these resources in 'Das Zeiss-Archiv in Jena - Hinweise zur Struktur, dem Internet-Zugang und zur Nutzung vor Ort.' Zeiss maintains a very large archive of papers, which are resource of great importance to those interested in early binoculars - including models from other manufacturers.

Simon Tomlinson presented 'Ross Prismatic Binoculars, the early years,' showing examples of binoculars, patents, and serial numbers, to begin a sequence of dating for early Ross models.

Hans Weigum gave the final talk, on 'Die derzeitigen optischen Firmen in Russland und ihr Fernglas-Produktionsprogramm', which was an English language presentation on Russian optics.
Letters found on Russian binoculars can include: BPO = binocular Porro, and O = extended eye relief. For some manufacturers, the first two digits of the serial number are the year of manufacture. The Yukon models exported to the West are partially supplied by LOMO.

After this talk, we took a tour of the Ehrenbreitstein fortress just outside Koblenz, including a 'living history' monologue drama. We returned to the WTS to pack up displays and say farewell. Back at the hotel, conversations continued late into the night.

On Monday, some attendees drove to Wetzlar to visit the Zeiss-Hensoldt Werk, and see some of the underground, dug-out workshops used during WWII.

This was a very complicated meeting, on a tight schedule. Extensive planning was needed to bring in the complicated schedule of speakers. Lunch and snacks were included. The museum is on German military property and security was an issue that planners needed to address. 90 people indicated that they would come, and about 70 actually attended, resulting in a shortage of funds which was not shared among organizers but borne by an individual. It was a very complicated meeting, perhaps exceeding what a volunteer-run organization should attempt. Some assistance was given by Peter Abrahams, Lothar Esch, and others; Lothar Simon and Frau Simon gave considerable assistance; and the meeting as a whole is almost entirely due to the efforts of Hans Seeger.

One issue that was discussed by the entire group, was the future of the Binocular History Society. The larger issues of what we want to accomplish were mentioned, but the immediate issue was the location of our next meeting. To date, no one from an English-language country has volunteered to run the next meeting. Of course, it need not be as complex or large as the Koblenz meeting. A note was communicated to the group, from Dr. Aichner, of the Bayerisches Armee Museum, in Ingolstadt, Bavaria (near Munich), indicating that he would be willing to host an upcoming meeting. Presumably this would be in

two years or even later. This is encouraging news, and we will see how things develop. Interested persons from other regions of the world will hopefully consider hosting a meeting in their location, which can be a smaller, informal, or regional event.