



The Photogrammetric Week Series – A Centennial Story of Success

Dieter Fritsch

Opening

The 100th Anniversary of The Photogrammetric Week Series

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The Photogrammetric Week Series ... Remembering Dr. Carl Pulfrich



C. Pulfrich.

Dr. Carl Pulfrich

Sept. 24, 1858 – Carl Pulfrich was born

1871 German Empire, Otto von Bismarck first “Reichs” chancellor

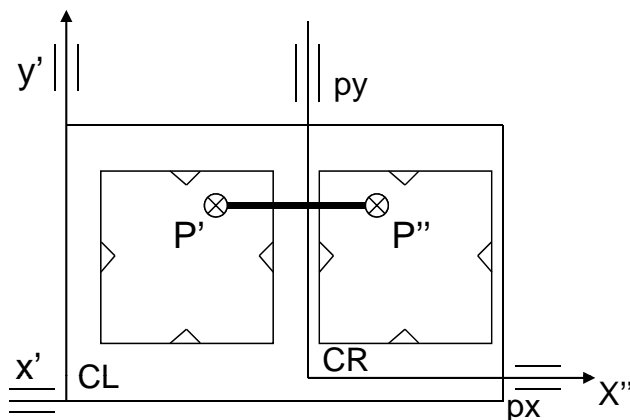
1881 C. Pulfrich finished his PhD in Optics at Bonn University, collaborated with chemists to build a new refractometer (as Dr. E. Abbe did at Zeiss Jena)

1890 C. Pulfrich joined Carl Zeiss Jena to design optical instruments

The Photogrammetric Week Series ... Remembering Dr. Carl Pulfrich

The Stereo Comparator principle

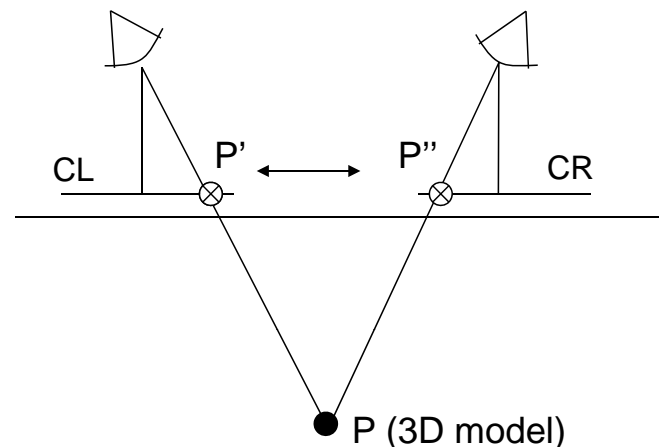
(i) mechanics



CL left carrier

CR right carrier

(ii) measurement process

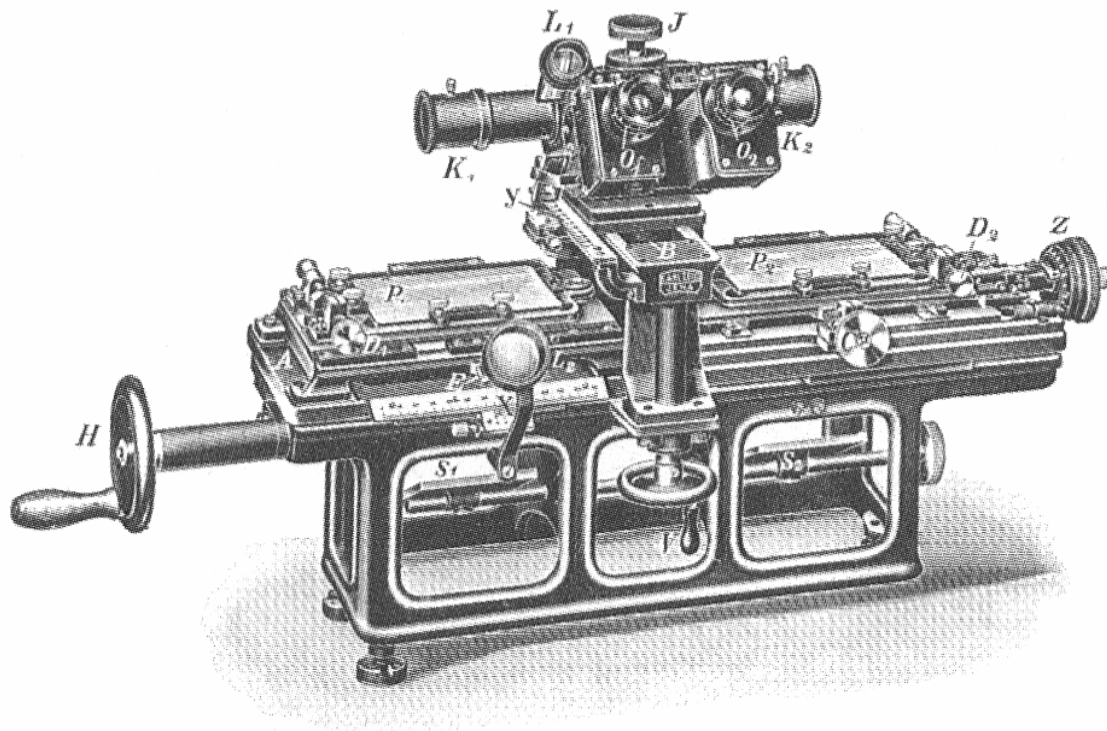


$$px = x' - x''$$

$$py = y' - y''$$

(parallaxes)

The Photogrammetric Week Series ... Remembering Dr. Carl Pulfrich



Copyright: Carl Zeiss, Oberkochen

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The Photogrammetric Week Series ... Some Milestones



- 1901 C. PULFRICH presented the Stereo Comparator (at Carl Zeiss Jena)
- 1908 E. von OREL presented the Stereo Autograph (at Carl Zeiss Jena)
- 1915 Invention of Aerial Camera System (also built at Carl Zeiss Jena)
- 1915 E.O. MESSTER invented the Serial Projector (Reihenbildner) for terrestrial photogrammetry (at Carl Zeiss Jena)
- 1916 M. GASSER invented his Projector for aerial photogrammetry
- 1919 NISTRI presented the Photo Cartograph
- 1920 R.HUGERSHOFF invented the Auto Cartograph (at Carl Zeiss Jena)
- 1923 H. von BAUERSFELD invented the Stereo Planigraph (at CZ Jena)

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The Photogrammetric Week Series ... The first Photogrammetric Weeks



- 1909 C. PULFRICH invited in June for a „Vacation Course in Stereo-Photogrammetry“. The 1st took place from Oct. 4 to 9 with 46 participants (4 from Austria, 2 from former Yugoslavia, 1 from Russia, former Czechoslovakia, and Hungary, resp.)
- 1910 ... 1913 Vacation courses in photogrammetry were maintained, same structure, same number of participants, terrestrial photographs were taken in Jena Center and processed by the participants.
Location: „Volkshaus“ of Carl Zeiss Foundation“
- 1914 ... 1918 World War 1st, the first vacation courses were interrupted
- 1921 Zeiss Aerotopograph was founded, a subsidiary to make worldwide marketing
- 1929 O. VON GRUBER restarted the Photogrammetric Week series

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The Photogrammetric Week Series ... Aerial Photography as it began

- Through the invention of airplanes aerial photogrammetry was launched around 1915/16 as method for topographic mapping (most probably influenced by World War 1st)



Hand-held Camera (1926)
Format 13 x 18 cm



Airplane
(1923)

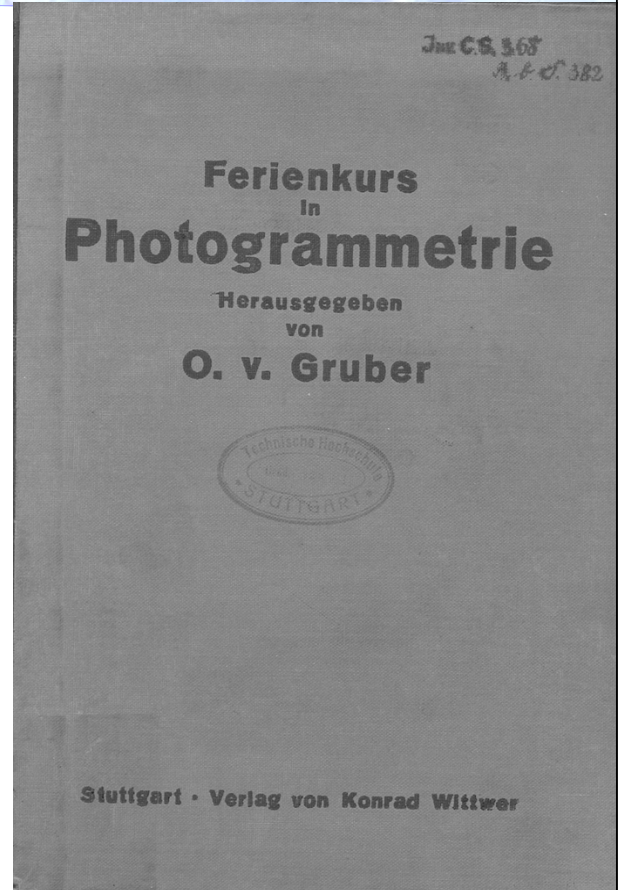


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The Photogrammetric Week Series ... Otto von Gruber



50th Photo



The Photogrammetric Week Series (cont)



- | | |
|---------------|---|
| 1929 ... 1940 | Some more 15 vacation courses were held in Jena, in quick succession. Main topics: Aerial Photogrammetry, analog plotters |
| From 1932 | Zeiss Aerotopograph organized the meeting. In 1933 the name changed to „Jena Introductory Courses“ or „Jena Introductory Courses in Photogrammetry“, Prof. HUGERSHOFF (TUD) joined the organization |
| 1940 | Again interruption due to World War 2nd |
| After 1945 | Postwar era meant a restart from scratch, not only for The Photogrammetric Week series but also for photogrammetry itself. |

The Photogrammetric Week series (cont)



- | | |
|------------|--|
| After 1945 | Carl Zeiss was split into an eastern (Jena) and western camp (Oberkochen). |
| From 1950 | Wild Heerbrugg dominated the analog Photogrammetric Plotter market. Oberkochen started with significant contributions particularly on the camera side. |
| 1950s | First analytical (linearized) computations of the Collinearity equations (D.C. Brown, H.H. Schmid) |
| 1967 | Distortion-free RMK-A series was introduced, which was replaced by the RMK Top in the 1990s |
| 1982 | LMK was presented from CZ Jena with first stabilized camera mount and FMC performance as trend-setting innovations |

The Photogrammetric Week Series ... 22th Photogrammetric Week 1954 in Munich



- | | |
|-------------|--|
| Organizers: | Prof. Richard Finsterwalder; TH Munich
Prof. Kurt Schwidofsky; Fa. Carl Zeiss, Oberkochen |
| Right hand: | Dr. E.O. Messter, Fa. Zeiss-Aerotopograph, Munich |

The Photogrammetric Week Series ... 25th Photogrammetric Week 1958 in Munich



Organizers: Prof. Richard Finsterwalder, TH Munich
Prof. Kurt Schwidofsky, Carl Zeiss, Oberkochen
Opening by: Prof. Kurt Schwidofsky, Carl Zeiss, Oberkochen

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The Photogrammetric Week Series ... The RMK 1967



The Photogrammetric Week Series ... Milestones (cont.)



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|-------|--|
| 1970s | Bundle Block Adjustments: The independent model, the bundle approach, first DTM packages, Digital Orthophotos, Remote Sensing with Landsat, Linear-array cameras |
| 1980s | Digital image correlation (area-based, feature-based matching), GPS-supported aerial triangulation, profiling LiDAR, GIS approaches photogrammetry |
| 1990s | Internet/Web, Airborne LiDAR Scanners, GPS/INS Integration, Static LiDAR instrumentation, pilot digital airborne camera systems, Testsite Vaihingen/Enz, automated aerial triangulation, IKONOS: 1st HR satellite launch, 3D City Models |
| 2000s | Commercial digital airborne camera systems, UAVs, Digital Globes, oblique digital images, mobile mapping, Cloud Computing, Collaborative mapping, Photogrammetry 2.0, Value-added photogrammetry, etc |

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The Photogrammetric Week Series ... As Automation began (1960s)



E 3 Planicart analog precision plotter connected to HP 1000 A microcomputer with HP 7580 drum plotter. Measurement supported by program package PLANIMAP/PLANI-AS and VIDEOMAP system for superimposition.



The Photogrammetric Week Series (cont)



- 1950s The 'Munich' Photogrammetric Weeks. Organizers: R. FINSTERWALDER and K. SCHWIDEFSKY (9 events, 60 atts in average)
- 1958, 1961 Carl Zeiss, Jena continued with two courses (Prague, April 14-May 12, 1958 and Budapest, June 6-July 1, 1961), Organizers: H. SCHOELER/E. FELDKELLER
- 1965 ...1971 The 'Karlsruhe' Photogrammetric Weeks. Organizers: W. AHREND and K. SCHWIDEFSKY, later H.K. MEIER/K. SCHWIDEFSKY/F. ACKERMANN (4 events, 180 atts in average)
- From 1973 The 'Stuttgart' Photogrammetric Weeks. Organizers: F. ACKERMANN/H.K. MEIER, later F. ACKERMANN/D. HOBBIE (240 atts in average)
- From 1993 The 'Stuttgart' Photogrammetric Weeks. Organizers: D. FRITSCH/D. HOBBIE, also D. FRITSCH/R. SPILLER, (350 – 400 atts in average), The PhowoTutorial Series starts 1993

The Photogrammetric Week Series ... 30th Photogrammetric Week 1965 in Karlsruhe



Organizers: Dr. W. Ahrend, Carl Zeiss, Oberkochen
Prof. Kurt Schwidefsky, Univ. Karlsruhe
Lecture by: Dr. Hans-Karsten Meier, Carl Zeiss, Oberkochen

The Photogrammetric Week Series ... 35th Photogrammetric Week 1975 in Stuttgart



Organizers: Prof. Dr. Fritz Ackermann, Univ. Stuttgart
Prof. Dr. Hans-Karsten Meier, Carl Zeiss,
Oberkochen

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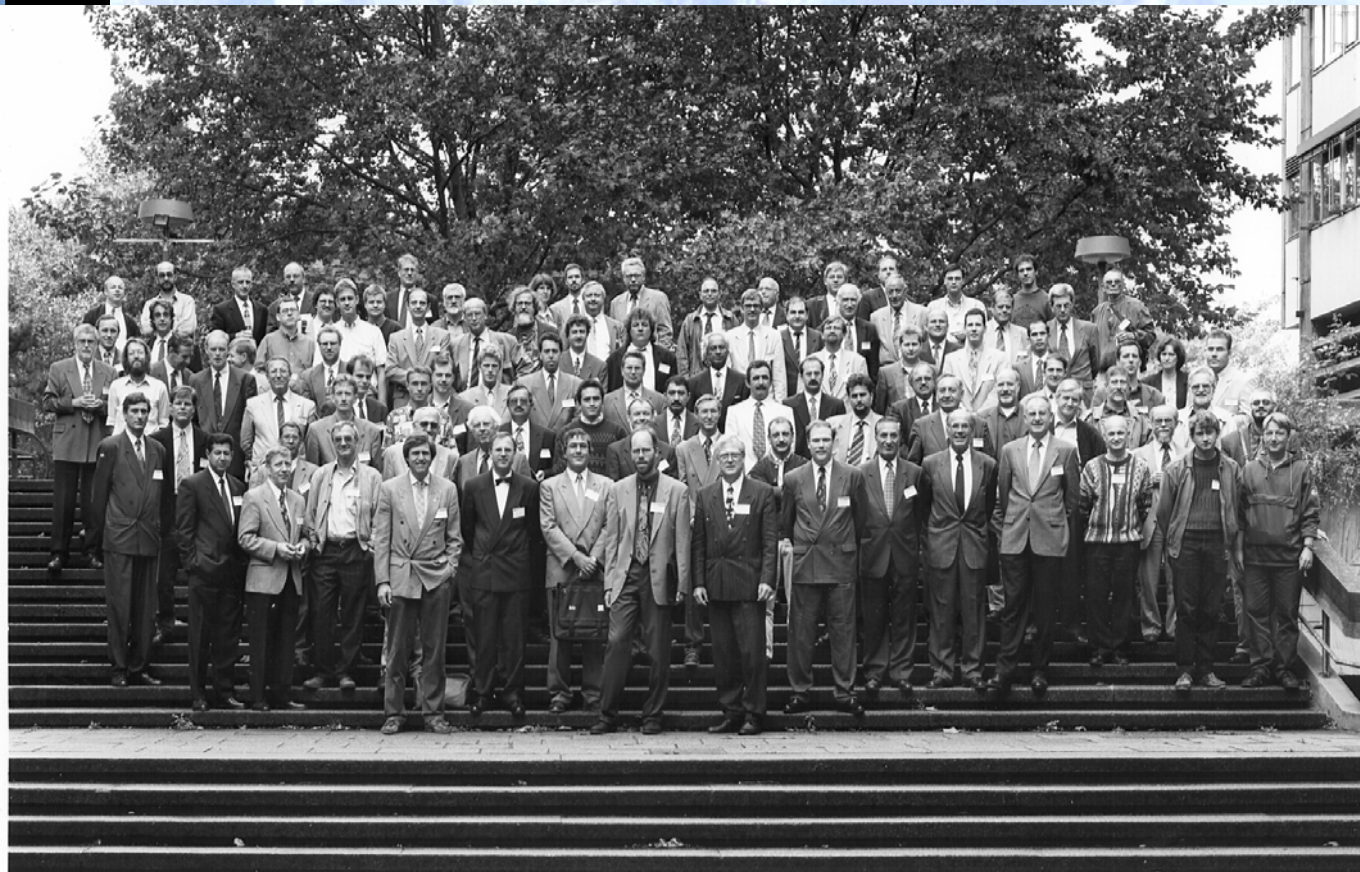
The Photogrammetric Week Series ... 40th Photogrammetric Week 1985 in Stuttgart





The Photogrammetric Week Series ... 45th Photogrammetric Week 1995 in Stuttgart

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The Photogrammetric Week Series ... 50th Photogrammetric Week 2005 in Stuttgart

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The Photogrammetric Week Series (cont)

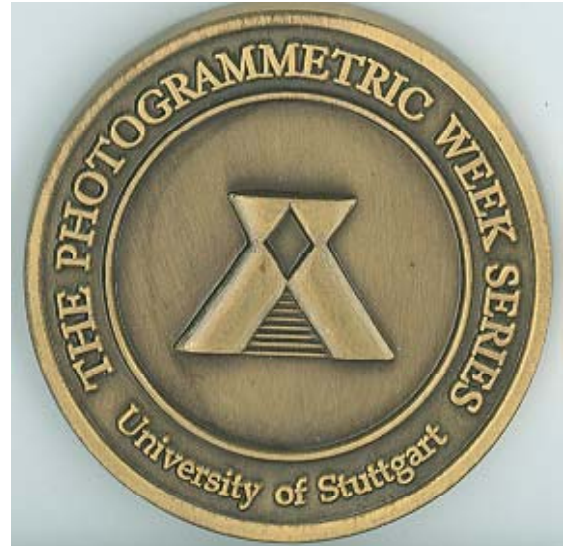
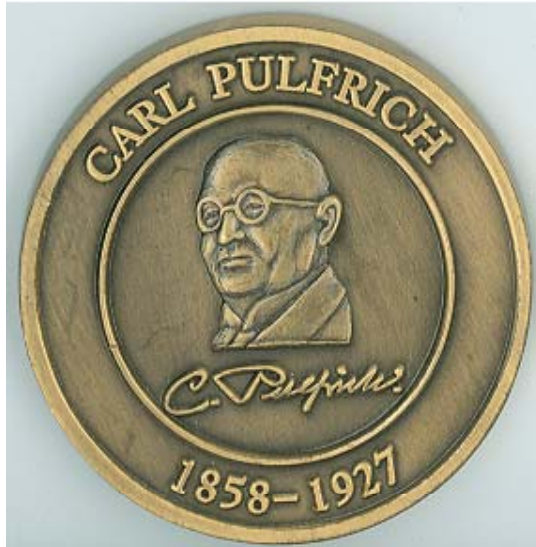


From 2003

The 'Stuttgart' OpenPhowo Photogrammetric Weeks. Organizer: D. FRITSCH, Photogrammetric Week was „opened“ for more industrial partners (OpenPhowo Partners), >400 atts in average

Sept 2009

The 100th Anniversary of The Photogrammetric Week Series, The Carl Pulfrich Medal



The Photogrammetric Week Series ... OpenPhowo Partners 2009



(1) Thanks to the OpenPhowo Partners:



(2) The Photogrammetric Week Series is ready to serve for another 100 years – Thanks to all of you for coming!