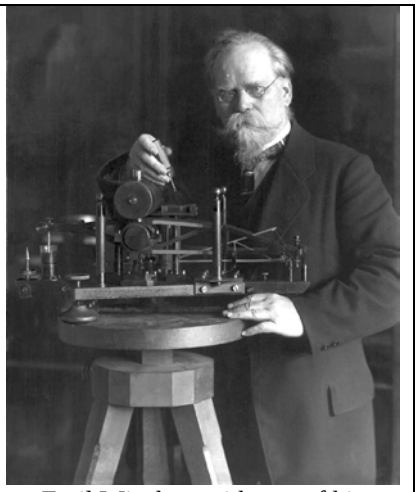
The 2nd Edition of the
IASPEI New Manual of Seismological Observatory Practice
is dedicated to the

150th birthdays
of the founders of modern observatory seismology

Emil WIECHERT (1861-1928)

- **Born on 26.12.1861 in Tilsit**
- **1881-89 study of Physics at Königsberg** (now Kaliningrad)
- **1896 discovers the electron, determines its ratio mass to electric charge and proposes that the Earth´s core consists of iron**
- **1898 world-wide first appointment as Professor of Geophysics (Göttingen Univ.)**
- **1900 first WIECHERT pendulum seismometer**
- **1901 attendance of the International Seismological Conference at Strasbourg, becoming one of the "founding fathers" of the International Association for Seismology, the forerunner of IASPEI**
- **1902 opening of the seismological station Göttingen**
- **1903 publication of the "Theory of automatic seismographs"**
- **1904 17t horizontal pendulum at Göttingen station**
- **1910 WIECHERT-HERGLOTZ formulas, allowing the exact analytical solution of the inverse problem for calculating 1D velocity-depth models from continuous prograde travel-time curves.**
- **Passed away at Göttingen on 19.03.1928**
- **About 180 WIECHERT seismographs of different type were operated at more than 110 observatories world-wide, some of them still being in use today.**



Emil Wiechert with one of his vertical component seismographs

and

Boris Borisovich GALITZIN (1862-1916)

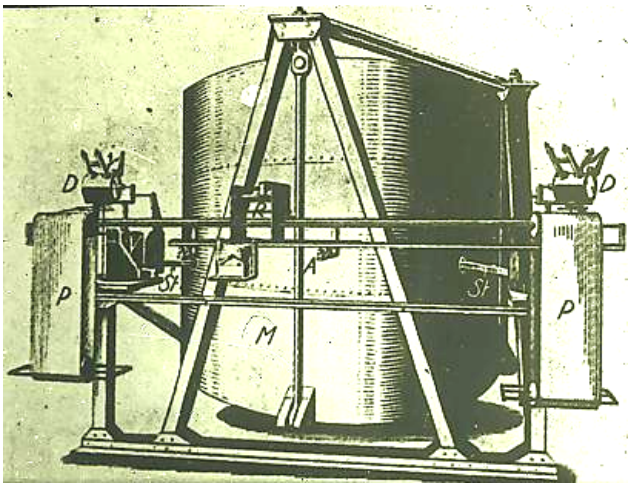
- **Born on 02.03.1862 in Saint Petersburg**
- **Study of physics and mathematics at Strasbourg University**
- **1893 "Research into the Mathematical Physics" with which he paved the way for the emergence of quantum mechanics**
- **Since 1894 Director of the Physical Cabinet of the Russian Imperial Academy of Sciences**
- **1901 proposes and builds the first vibration table for instrument parameter calibration**
- **1902 General theory of the horizontal pendulum; proposes electromagnetic transducer and pendulum damping with galvanometric-photographic recording**
- **1907 proposes at the meeting of the International Seismological Association the general introduction of damped pendulums**
- **Design and testing of a piezoelectric accelerometer**
- **1911 first determination of the energy of an earthquake by estimating the energy density from distant seismic recordings**
- **1912 publication of his pioneering "*Lectures on Seismometry*"**
- **1913 elected as Director of the Main Physical Observatory**
- **Developed the first program on earthquake prediction research and hypothesized about triggering effects of seismicity**
- **Detailed study of microseisms for forecasting cyclonic activity**
- **Galitzin seismometers were used world-wide until mid 1970s**
- **Passed away on 17.05.1916**

Emil WIECHERT´s motto:

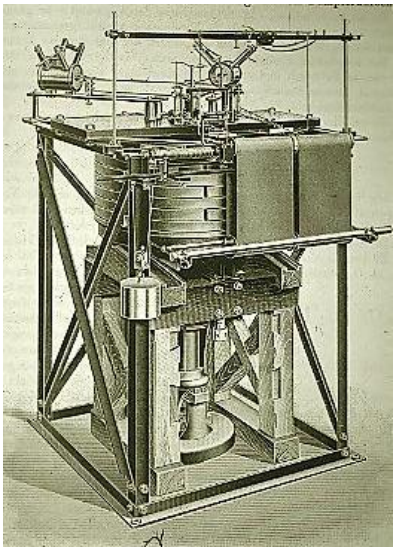
(written in 1902 over the entrance to the seismological station Göttingen, Germany)

The trembling rock
bears tidings from afar –
Read the signs!

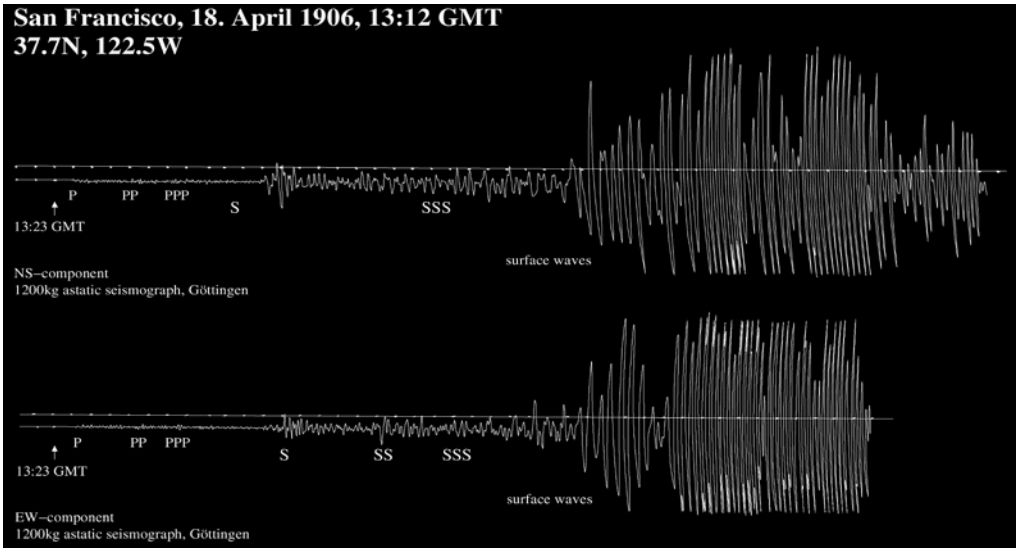
Seismographs and recordings



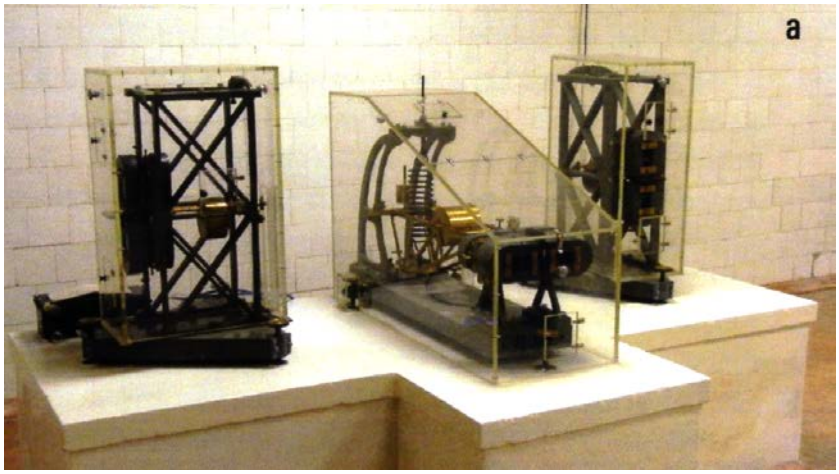
The 1904 17t WIECHERT pendulum (Ts = 2.2s, magnification ≈ 2000)



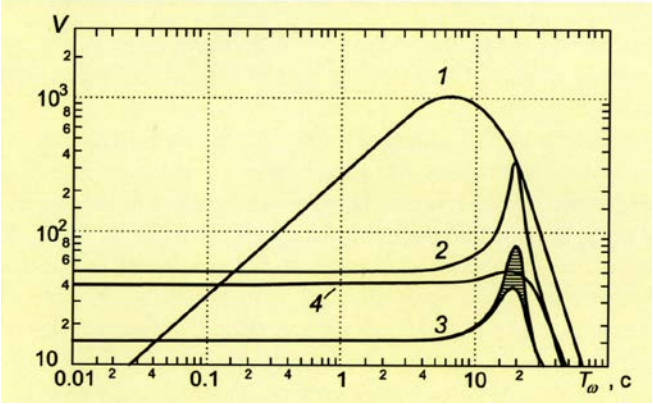
The 1904 WIECHERT astatic horizontal component pendulum (mass = 1.2t, Ts ≈ 8.5 s, magnification ≈ 200) and record of the ⬇1906 San Francisco earthquake at Göttingen



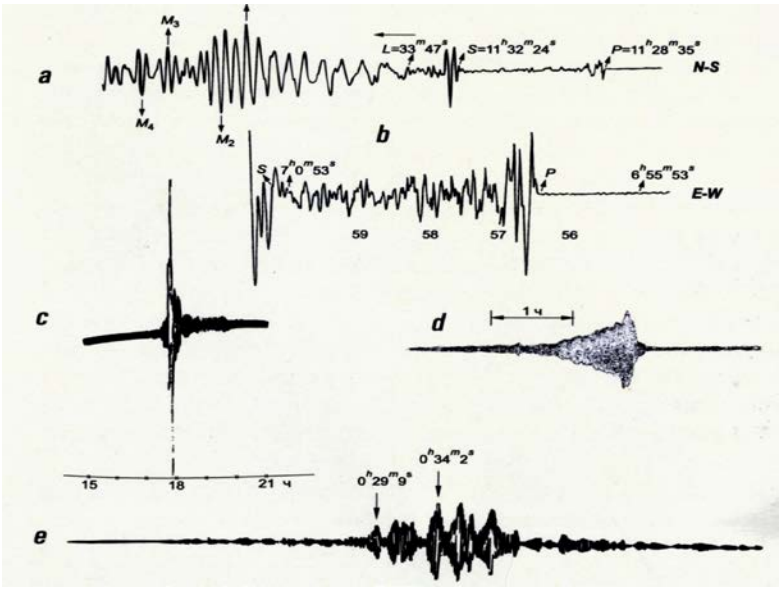
Boris Borisovich Galitzin´s seismographs and records



3-component set of electro-dynamic GALITZIN seismographs at Pulkovo station
(Photo by A. Ya. Sidorin)



Amplification curves (1) of the electrodynamic GALITZIN seismograph with galvanometric recording, (2) of the Rebeur-Paschwitz seismograph, (3) of the Milne seismograph, and (4) of the heavy horizontal GALITZIN pendulum. Note the resonance peaks of the unattenuated seismographs (2) and (3).



Record examples (a-b) of the electrodynamic GALITZIN seismograph, (c-d) of the Rebeur-Paschwitz instrument and (e) of the Milne seismograph.

Complementary remark

The year 2012 is also the 150th anniversary of **Radó Kövesligethy (1862-1934)**, the founder of the seismological observatory Budapest (1905) and Secretary General of the International Seismological Association (ISA; 1905-1922). Kövesligethy made several important theoretical and methodological contributions to seismology, amongst them the macroseismic procedure of depth determination of earthquakes and, in 1905 at the Hague conference of the ISA, he proposed the calculation of the emergence angle of seismic rays based on 3-component records. This stimulated B. B. Galtizin to develop his famous vertical-component seismograph. For a detailed account of the work of R. Kövesligethy see on the IASPEI website http://www.iaspei.org/newsletters/newsletters.html Peter Vargas contribution to the IASPEI Newsletter of November 2012.

Acknowledgments

The dedication has been compiled by the Editor, P. Bormann, using different sources. The Wiechert portrait photo and the San Francisco earthquake record were copied with kind permission of the University of Göttingen, Germany, and the drawings of the Wiechert pendulums from Galitzin´s (1910) publication on seismometry.

The portrait of B. B. Galitzin, of his instruments as well as of the comparative responses and record examples were copied, with kind permission of the authors Alexander Ponomarev and Alexander Sidorin, from a commemorative leaflet prepared on the occasion of the 33rd General Assembly of the European Seismological Commission (ESC), Moscow, 19-24 August 2012. For more details see also the IASPEI Newsletter of October 2012.