

*Festveranstaltung 150 Jahre
Mittleuropäische Gradmessung
Vienna, 12 September 2012.*

***Geodesy in Hungary and the Relation to (Mittel-)
Europäische Gradmessung/Internationale
Erdmessung – A Short Historical Review***

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***Department of Geodesy and Surveying
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Contribution in the following areas:

- establishment of survey control networks
 - horizontal (1862-1913)
 - vertical (1873-1913)

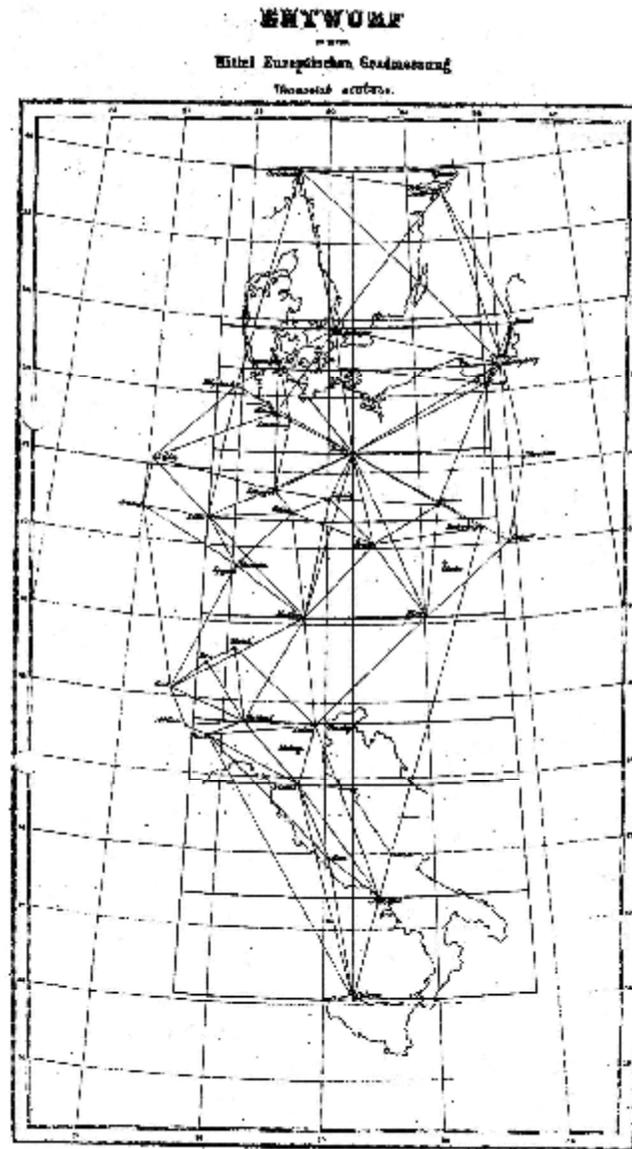
- geodetic research and scientific activities at the Universities
 - **Loránd Eötvös** (Dept. of Physics, Budapest University)
 - **István Kruspér**, **Lajos Bodola** and **Károly Oltay** (Dept. of Geodesy and Surveying, TU Budapest)

- organization of the General Conference of the
 - Europäische Gradmessung in Vienna in 1871, and
 - Internationale Erdmessung in Budapest in 1906.

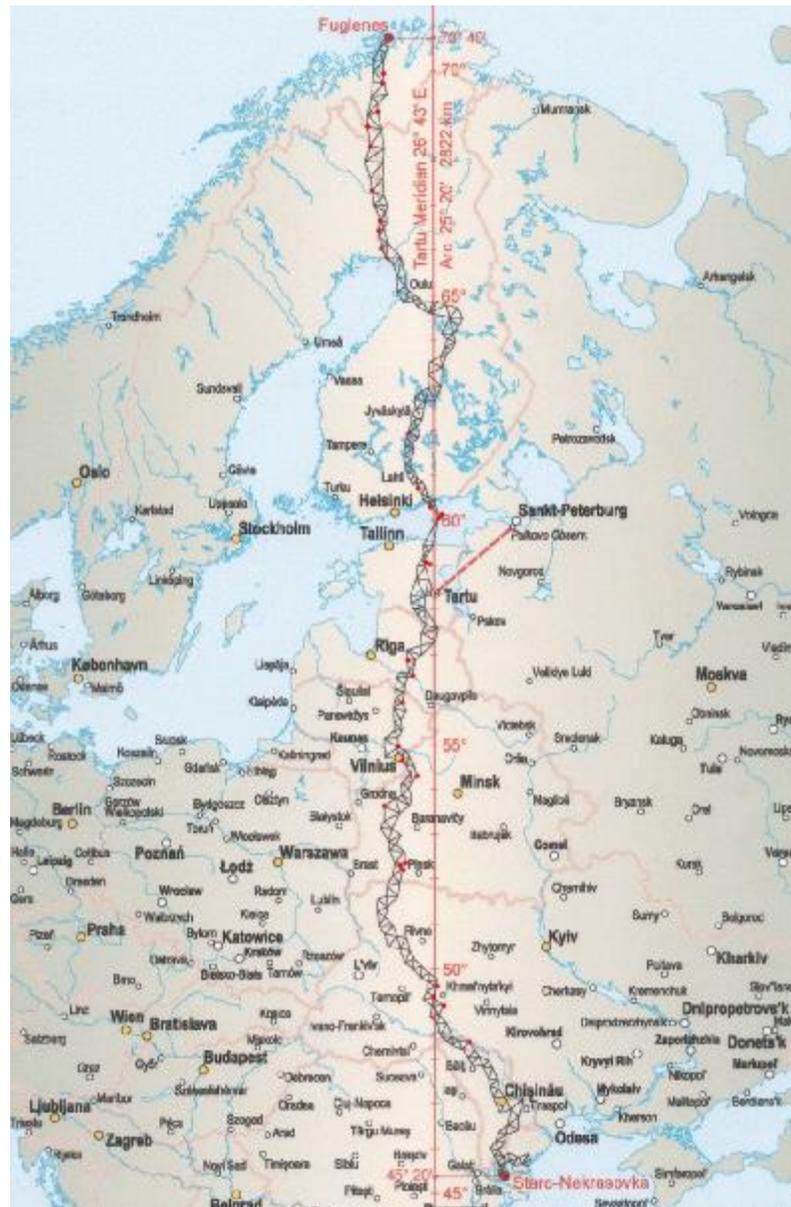


J. J. Baeyer (1794-1885)

Network sketch of the Mitteleuropäische Gradmessung



The Struve Geodetic Arc (1816-1855)



No	Meeting Location	Year
I. General Conferences		
<i>I.a. "Mitteleuropäische Gradmessung" (1862-1867)</i>		
1	Berlin, Prussia	1864
2	Berlin, Prussia	1867
<i>I.b. „Europäische Gradmessung“ (1867-1886)</i>		
3	Vienna, Austria-Hungary	1871
4	Dresden, Saxony	1874
5	Stuttgart, Württemberg	1877
6	Munich, Bavaria	1880
7	Rome, Italy	1883
8	Berlin, Prussia	1886
<i>I.c. International Geodetic Association (Internationale Erdmessung) (1886-1919)</i>		
9	Paris, France	1889
10	Brussels, Belgium	1892
11	Berlin, Germany	1895
12	Stuttgart, Germany	1898
13	Paris, France	1900
14	Copenhagen, Denmark	1903
15	Budapest, Austria-Hungary	1906
16	Cambridge, United Kingdom	1909
17	Hamburg, Germany	1912

<i>No</i>	<i>Period</i>	<i>Name</i>	<i>Place of Homestead</i>
1	1864-1868	Peter Andreas Hansen	Gotha, Thuringia
2	1869-1874	August von Fligely	Vienna, Austria-Hungary
3	1874-1891	Carlos Ibañez e Ibañez de Ibero	Madrid, Spain
4	1892-1902	Hervé E.A.A. Faye	Paris, France
5	1903-1917	Léon J. A. Bassot	Paris, France
6	1922-1933	William Bowie	Washington, USA
7	1933-1945	Felix A. Vening-Meinesz	Amersfoort, The Netherlands
8	1945-1951	Walter D. Lambert	Washington, USA
9	1951-1954	Carl F. Baeschlin	Zurich, Switzerland
10	1954-1957	James de Graaf Hunter	London, United Kingdom
11	1957-1960	Gino Cassinis	Milan, Italy
12	1960-1963	Charles A. Whitten	Washington, USA
13	1963-1967	Guy Bomford	London, United Kingdom
14	1967-1971	Antonio Marussi	Trieste, Italy
15	1971-1975	Youri D. Boulanger	Moscow, USSR
16	1975-1979	Tauno J. Kukkamäki	Helsinki, Finland
17	1979-1983	Helmut Moritz	Graz, Austria
18	1983-1987	Peter V. Angus-Leppan	Kensington, Australia
19	1987-1991	Ivan I. Mueller	Columbus, USA
20	1991-1995	Wolfgang Torge	Hannover, Germany
21	1995-1999	Klaus-Peter Schwarz	Calgary, Canada
22	1999-2003	Fernandó Sansó	Milan, Italy
23	2003-2007	Gerhard Beutler	Bern, Switzerland
24	2007-2011	Michael G. Sideris	Calgary, Canada
25	2011-2015	Chris Rizos	Sydney, Australia

(Mittel-) Europäische Gradmessung: Central Bureau / Perm. Commission



1864-1885 Director
C.B. J. J. Baeyer



1864-1868 President
P. A. Hansen



1869-1874 President
A. von Fligely



1874-1886 President
C. Ibáñez e Ibáñez de Ibero

Internationale Erdmessung / Association Géodésique Internationale



1886-1917 Director
C.B. F. R. Helmert



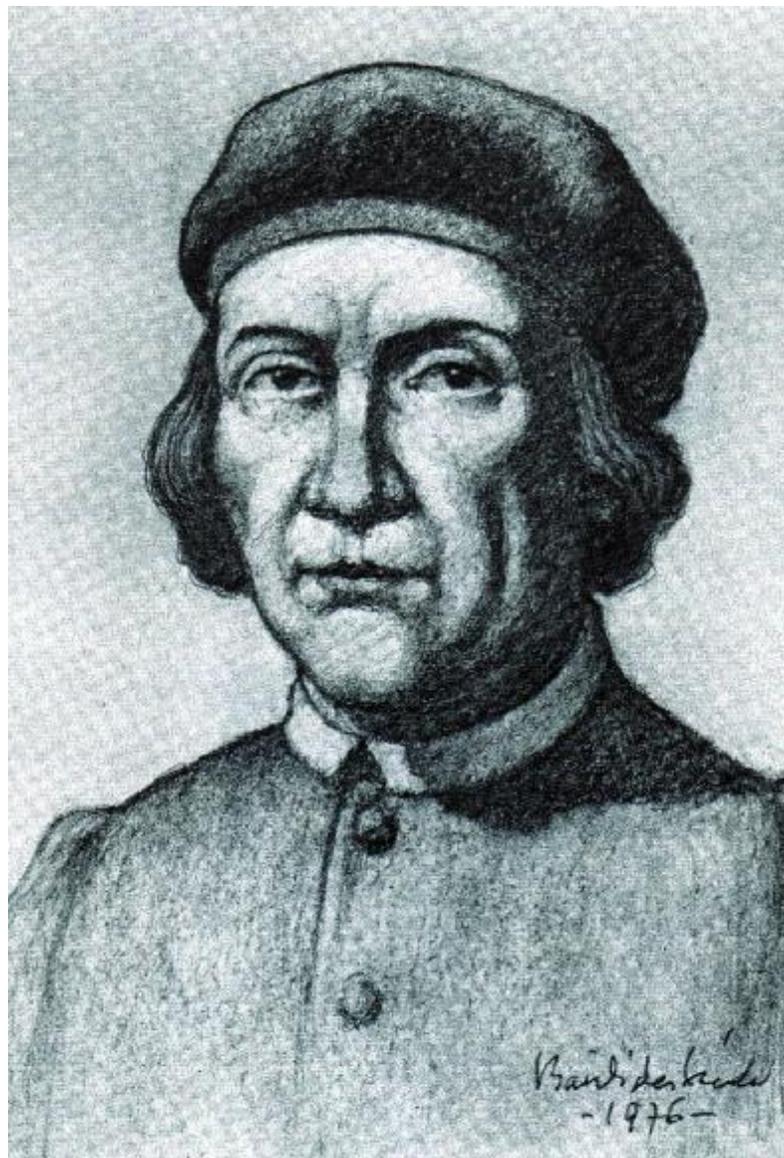
1887-1891 President
C. Ibáñez de Ibero



1892-1902 President
H. Faye



1903-1917 President
L. Bassot



Liesganig József (1719-1799)



FRANZ
ET
MARIA THERESIA
HABEN DIESE
SÄULE
AN DER
GRÜNDE
DES
WIENER
MÄRKTCHENS
GESTIFTET

AUF GEHEISS
UNTER FÖRDERUNG DER
MAJESTÄTEN
FRANZ & MARIA THERESIA
M.A.S.G.
JOSEPH LIESGANIG S.J.
DREI GRAD E DES
WIENER MERIDIANBOGENS
WERRICHTETE DIESE SÄULE
AM NORDLICHEN ENDE PUNKT
DER GRÜNDLINIE
IM JAHRE 1788.
INSTANDGESETZT VON KARL BEAUMT
FÜR DIE KÖNIGLICHE VERMESSUNGSPFICH
IM JAHRE 1919



Franz Xaver von Zach
Herzogl. Sachsischer Major und
Hofastronom in Gotha.

geb. zu Pest in Ungarn 1754. d. 13. Jun.

Erste Sitzung

der

dritten allgemeinen Conferenz der Europäischen Gradmessung.

Wien, Donnerstag den 21. September 1871.

Zu der dritten allgemeinen Conferenz der Europäischen Gradmessung waren erschienen:

1. Bevollmächtigte:

Baden.

1. Herr *Jordan*, Professor am Polytechnikum in Carlsruhe.

Bayern.

2. „ Dr. *Bauernfeind*, Director und Professor an der polytechnischen Schule in München.
3. „ Dr. *Seidel*, Professor in München.

Hessen-Darmstadt.

4. „ Dr. *Hügel*, Obersteuerrath in Darmstadt.

Italien.

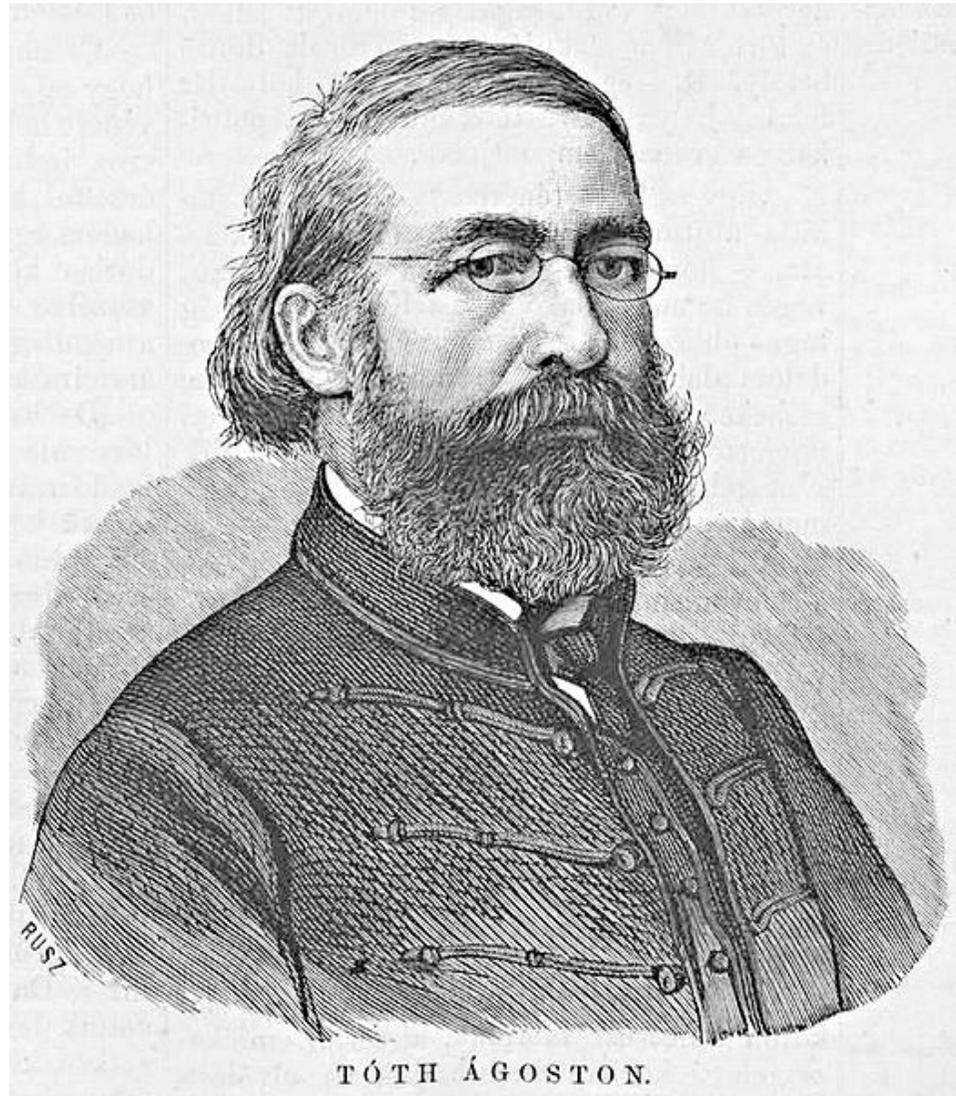
5. „ *Schiavoni*, Professor der Geodäsie in Neapel.

Mecklenburg.

6. „ *Paschen*, Geheimer Canzlei-Rath in Schwerin.

Oesterreich - Ungarn.

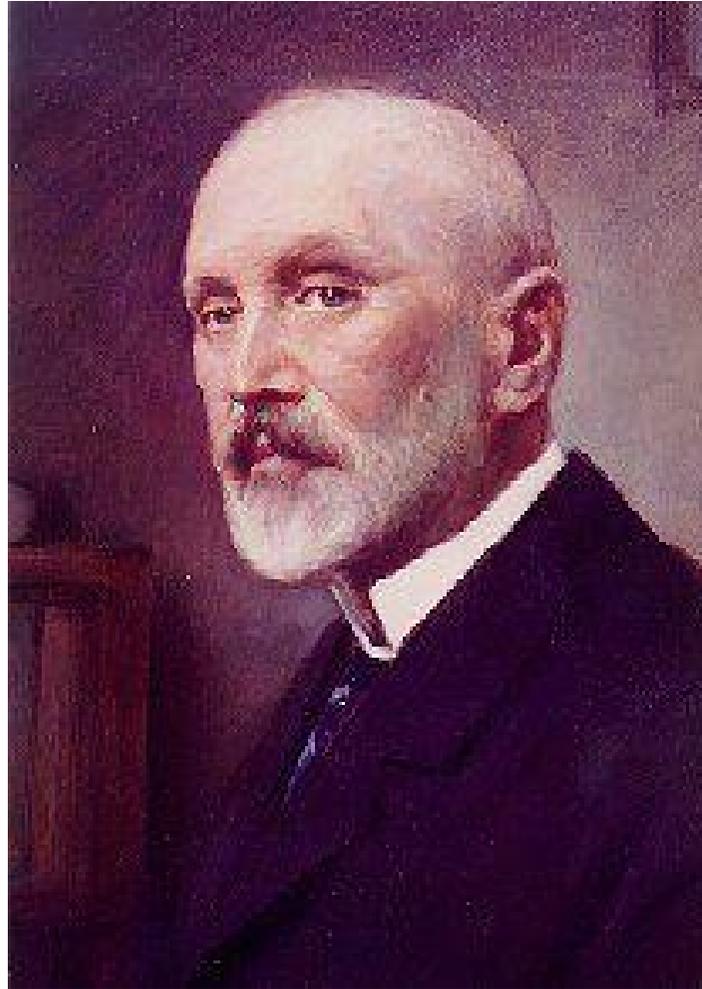
7. „ *v. Fligely*, Feldmarschall-Lieutenant und Director des militär-geographischen Instituts in Wien.
8. „ Dr. *Herr*, Regierungs-Rath und Professor am polytechnischen Institut in Wien.
9. „ Dr. *Karlinski*, Professor und Director der Sternwarte in Krakau.
10. „ *v. Tóth*, Honved-Oberst in Pest.



Tóth Ágoston (1812-1889)

Precise Levelling Network of Austria-Hungary (1873-1913)

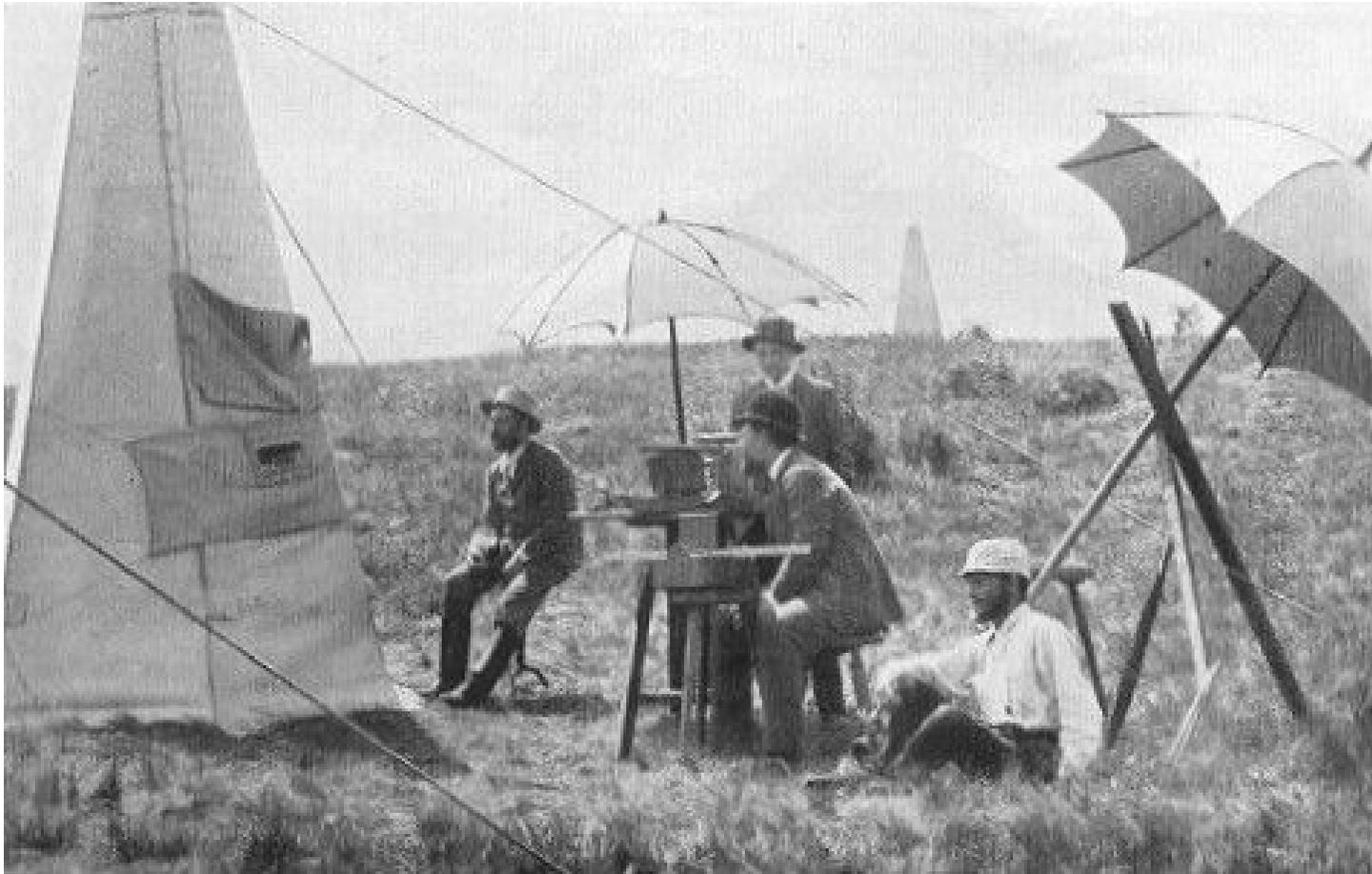




Eötvös Loránd (1848-1919)

Loránd Eötvös Virtual Museum <http://www.elgi.hu/museum/index.htm>

First torsion balance field measurements on Ság hill in 1891



***Professors and Heads of the Department of Geodesy
and Surveying at TUB***



Kruspér István
(1851-1894)



Bodola Lajos
(1894-1912)

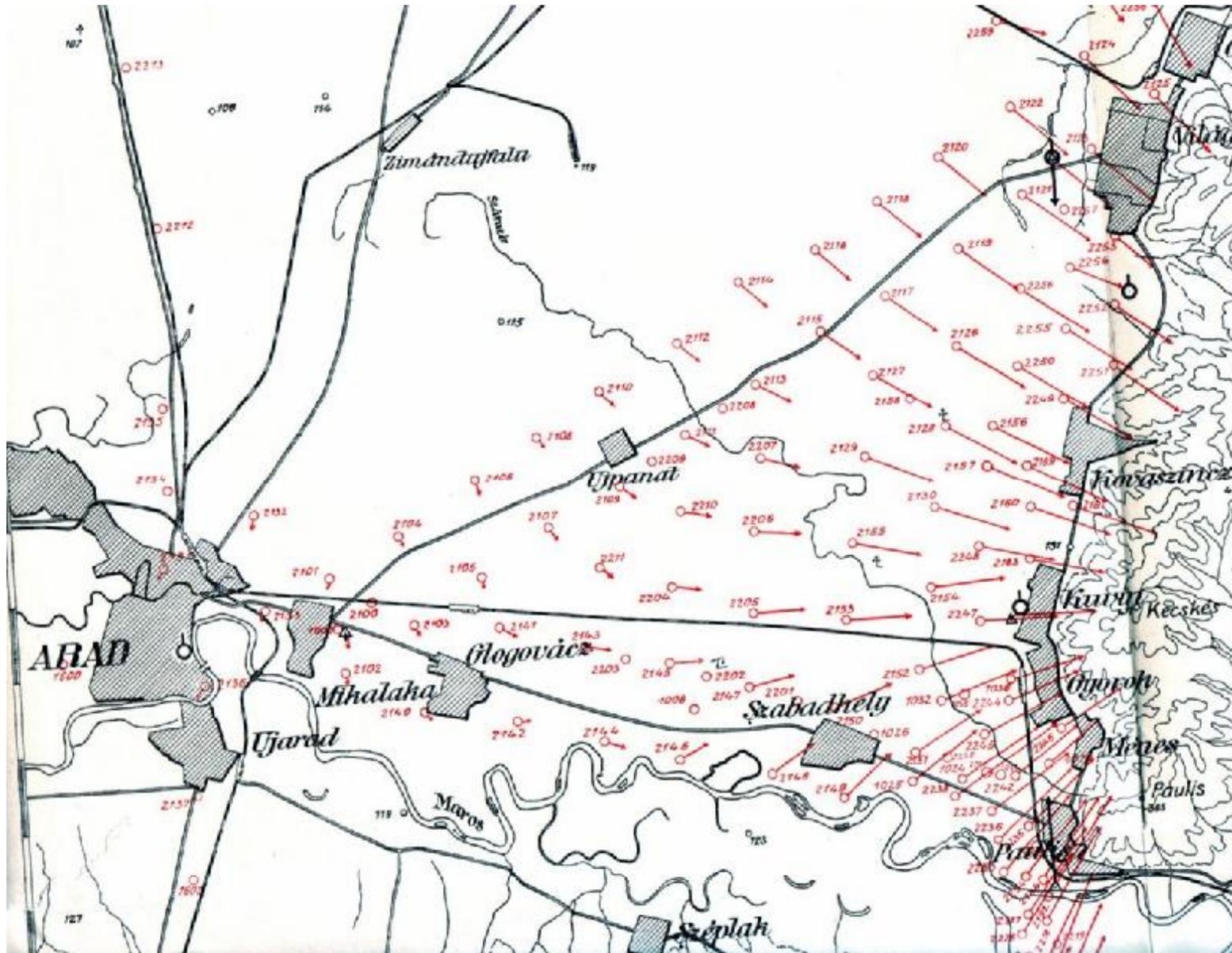


Oltay Károly
(1913-1955)

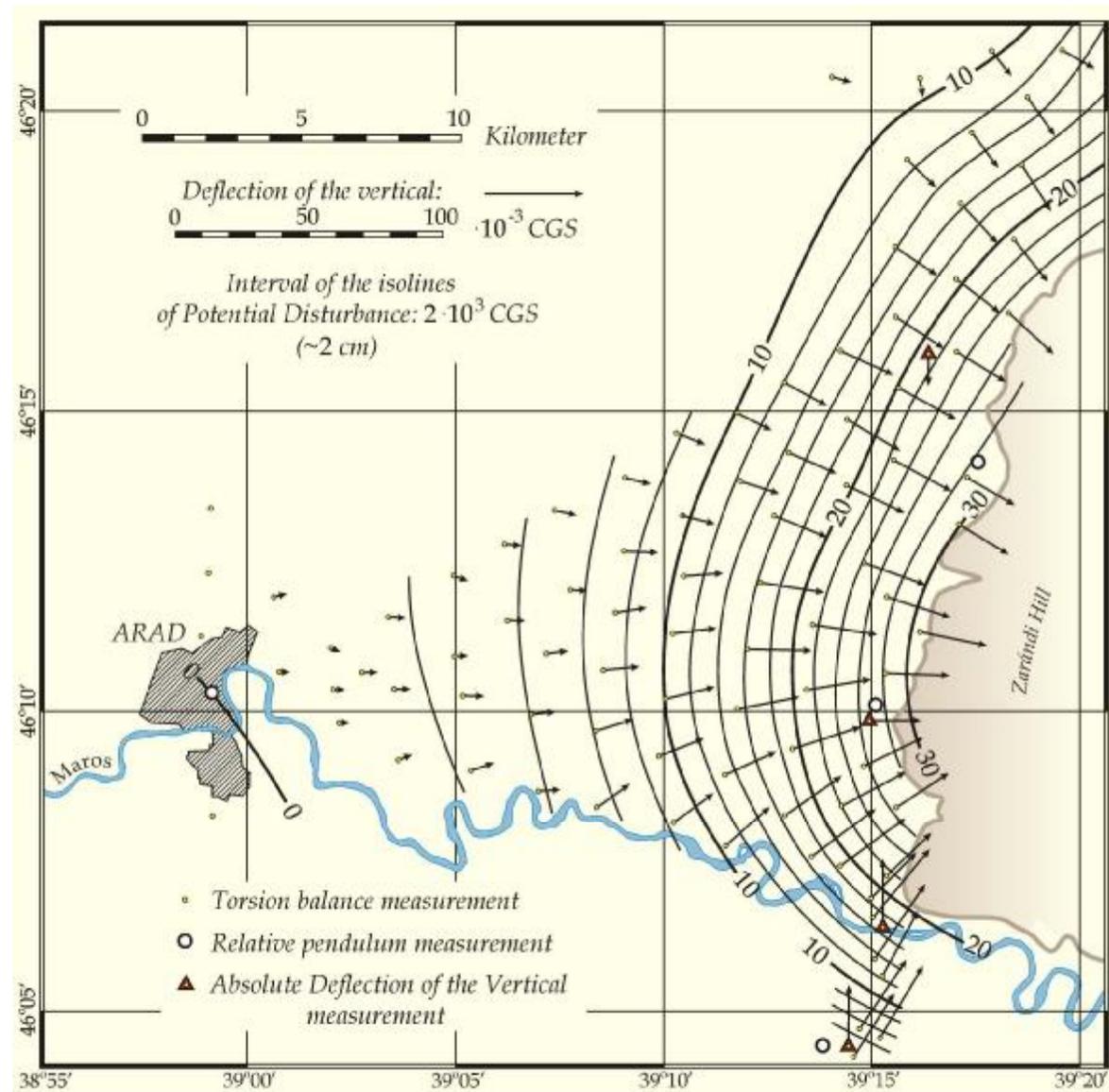
***15th General Conference of the Internationale Erdmessung,
Budapest, September 20-28, 1906.***



Eötvös torsion balance measurements in the region of Arad



Vertical deflections and a level surface contour map in the region of Arad



In appreciation of Loránd Eötvös' scientific achievements, some important rules and objects are linked with his name in geodetic science, namely:

- Eötvös effect,
- Eötvös correction,
- Eötvös torsion balance,
- Eötvös unit,
- Eötvös tensor

(see Groten (1980), Hotine (1969), Marussi (1985), Moritz and Hofmann-Wellenhof (1993), Moritz (1990), Torge (1980, 1991, 2001), Vanicek-Krakiwsky (1982, 1986)).

The role of the IAG activities in the Hungarian geodesy:

- Hungary as part of the former Austria is a founder member country of the IAG. As far as possible, Hungary continuously participates in the IAG's activities;
- Conventions, Resolutions and Standards accepted by the IAG were used in the establishment of the survey control networks (horizontal, vertical, gravity and 3D) and corresponding reference frames in Hungary;
- Introduction, presentation and acknowledgement of Loránd Eötvös' research activities and results in relation to the Earth's gravity field;
- Publication of the Hungarian national reports, presentation of the geodesy results of Hungary outside world;
- Regular presentation of the IAG's activities and results to the geodesy community in Hungary.