

The First International Meteorological Congress and the formation of the IMO

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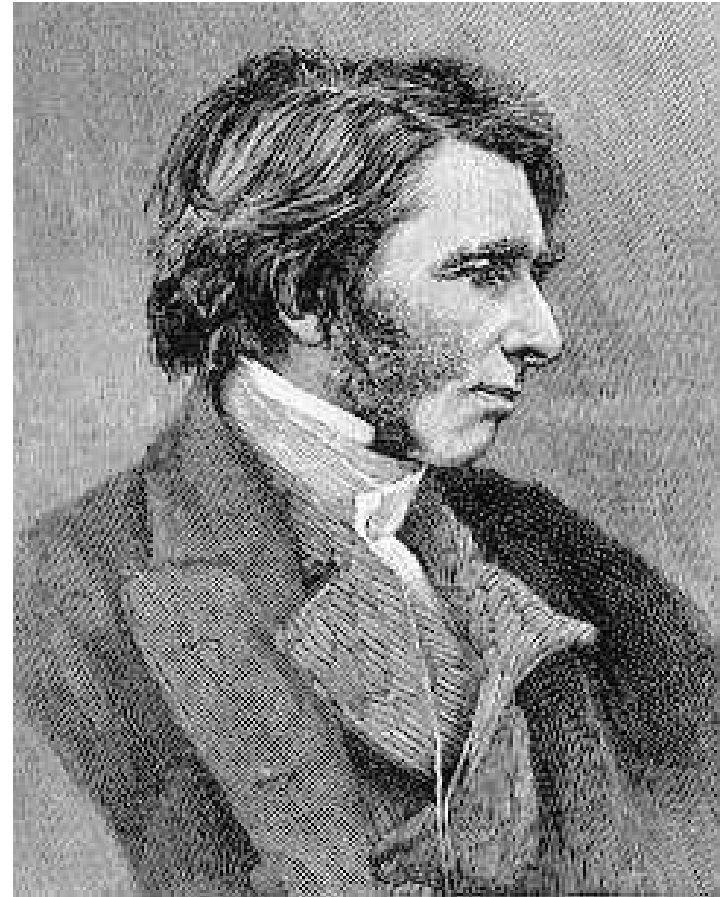
-with thanks to Howard Daniel* & Malcolm Walker

***100 years of international co-operation in meteorology (1873-1973)**



Royal Meteorological Society

“The meteorologist is impotent if alone; his observations are useless; for they are made upon a point, while the speculations to be derived from them must be on space...The Meteorological Society, therefore, has been formed not for a city, not for a kingdom, but for the world. It wishes to be the central point, the moving power, of a vast machine, and it feels that unless it can be thus it will be powerless; if it cannot do all it can do nothing. It desires to have at its command, at stated periods, perfect systems of methodical and simultaneous observations; it wishes its influence and its power to be omnipresent over the globe so that it may be able to know, at any given instant, the state of the atmosphere at any point on its surface.”



John Ruskin



Origins of the IMO - the preliminary phase

- **1843 Samuel Morse invents the telegraph**
 - “What hath God wrought”
- **1850 First weather maps based on telegraphic data displayed in Washington DC**
 - Then in France in 1855
- **1853 Brussels Maritime Conference**
- **1860s Efforts made for a second conference**
 - Prof. H W Dove proposed a meeting on coordination of terrestrial observations as part of the 1863 Swiss Congress of Naturalists
 - 1867 Prof Quetelet revived the proposal at the International Statistical Congress in Florence.
 - 1868 Renou and Marie-Davey observed, in a report to the French Government, that meteorologists agreed on the need for a permanent congress for Terrestrial Physics
 - 1871 Heinrich Wild pointed out the urgency of having an international meteorological congress to the Russian government



The preliminary phase - rationale for activity

- Meteorology starting to take a universal character due to increasing needs for climate and weather data collection for practical purposes.
- National economies required the development of meteorological station networks and the perfecting of observational methods.
- The electric telegraph, by facilitating data exchange formed the basis of weather forecasts.
(Academician E K Federov and Dr W Böhme)

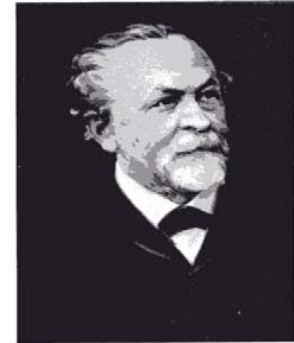
So the stage was set for international co-operation in meteorology and the First Meteorological Congress in particular...



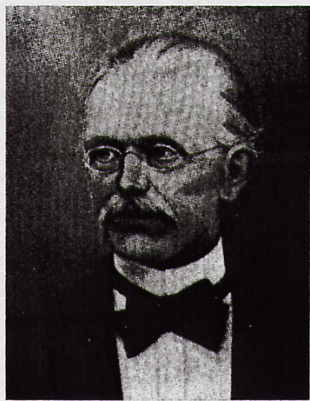
Some key players

PROFESSOR HEINRICH WILD

Zurich physicist; Director, Central Geophysical Observatory at St Petersburg, Russia, 1868-1895



*Heinrich Wild
1879-1896*



Professor Carl Jelinek

PROFESSOR CARL JELINEK
Moravian from Bruno; Director, Austrian Central and Geomagnetic Institute. Edited one of the best known meteorological journals

PROFESSOR CARL BRUHNS

Distinguished astronomer and geodesist.
Professor at Leipzig; Director, Meteorological Service of Saxony



Professor Carl Bruhns



The Leipzig Conference 1872

- Backed by the Austrian, German and Russian Governments, Bruhns, Jelinek and Wild organised a preparatory consultative conference held in Leipzig on 14 August 1872
- Invitees were heads of meteorological institutes as well as “private scientific men”
- Chief task - “to lay down the programme for the actual Congress” and to meet at intergovernmental level the following year in Vienna where two other opportunities were evident:
 - The new Central Meteorological and Geomagnetic Institute would be ready for visiting.
 - An International Exhibition would be an added attraction.



The Leipzig Conference 1872

- The invitation:
 - “At the present time the increasing interest in meteorological research shown by all the civilized countries has led to a demand for far reaching coordination and standardization of the methods and procedures for use in different countries. Such suggestions have been put forward and discussed so frequently (for example by C H D Buys Ballot in his paper *Suggestions on a uniform system of meteorological observations*, Utrecht, 1872) that the undersigned consider it both feasible and timely to propose the convening of a meteorological conference...”



The Leipzig Conference 1872

- **52 participants including Professor C H D Buys Ballot (1817-1890)**
- **Dr E H Sell of New York was the only attendee from outside Europe**
- **France was absent, perhaps because of all too-fresh memories of the Franco-Prussian war**



C H D Buys Ballot

The Leipzig Conference 1872

- The organisers drew up 26 questions for discussion, including :
 - The introduction of the metric system into meteorology (Qu 1!!)
 - Methods of making meteorological observations (e.g. use of aneroid barometers at second order stations; ways of installing thermometers; the introduction of screens...
 - Responsibility for collection and publication of observed data.
 - Value of telegraphic exchange (Qu 25).
 - What measures should be taken to carry out resolutions and decisions of the meeting (Qu 26)?
- They also sought technical papers as input



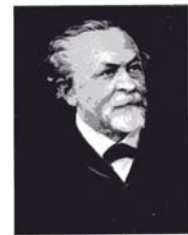
The Leipzig Conference 1872 - achievements

- **Agreement in large measure on standardised methods of observation and analysis including the use of a single set of symbols.**
- **Prepared the way for the First International Congress in Vienna in 1873**
- **Contemplated the establishment of a permanent body to deal with meteorological problems common to the international community**



The First International Meteorological Congress, Vienna, 1873

- Met from 2-16 September 1873
- 32 representatives of 20 governments
 - Its intergovernmental nature excluded many eminent meteorologists who had been at Leipzig
- 11 meetings under 5 vice-chairmen (Bruhns, Buys Ballot, Jelinek, Scott and Wild)
- 29 agenda items mainly on practical items
 - Calibration, checking of instruments, hours of observation, scales & units, the mutual exchange of information by telegraph
- Need for a permanent machinery to assure international organisation in meteorology ever present



Heinrich Wild
1819-1896



The First International Meteorological Congress, Vienna, 1873

- **The Congress created a Permanent Committee of 7 members. It also:**
 - Established the principle that work in international meteorology would be carried out on a voluntary basis
 - Agreed the definition of certain meteorological phenomena.
 - Agreed “a list of symbols for hydrometeors to be used in climatological tables and on weather charts
 - Agreed a classification of weather stations
 - Recognised the necessity for global observations (an issue raised by the US and Swiss delegates)



The Permanent Committee

- **Made up of Directors of Meteorological Services**
 - **Buys Ballot (President), Bruhns, Cantoni, Jelinek, Mohn, Scott & Wild**
- **First met the day the Congress closed, for 75 minutes, when it:**
 - **Established rules of procedure**
 - **Arranged for circulation of the Congress results to governments**
 - **Started work on standardised instructions & procedures for land observations and for standardising instruments**
 - **Began preparations for a Maritime Conference**
 - **Started work on a telegraphic code**
 - **Began study of the desirability of establishing an international meteorological institution**
 - **Considered arrangements for a Second World Meteorological Congress some years hence**



The Permanent Committee

- **Second meeting - Utrecht 10-16 September 1874**
 - One item dealt with the Maritime Meteorological Conference, a non-governmental meeting held in London 10 days previously and called to review the work of that in 1853.
- **Third meeting in London in April 1876**
- **Fourth meeting in Utrecht in October 1878**
 - Dealt almost exclusively with arrangements for the Second Meteorological Congress to be held in Rome in 1879
 - Drafted an agenda of 35 items
 - Drafted statutes for an International Meteorological Organisation
 - Professor P Mascart (France) co-opted
 - Professor J Hann elected to replace Professor Jelinek who had recently died



Second International Meteorological Congress, Rome, April 1879

- **40 meteorologists from 18 countries**
- **Divided its work amongst 5 committees and disposed of its business in 5 plenary meetings**
- **Created a broad structure, indicated a programme for that structure and a method of working based largely on international cooperation and voluntary effort**
- **Instituted an International Meteorological Committee (IMC) with 9 members replacing the defunct “Permanent Committee”**
- **Originally intended to report to a Third Congress, but none was called.**



International Meteorological Committee

- This evolved in due course into the IMO. As Howard Daniel notes:

“For a period of almost 70 years international cooperation in meteorology was firmly and efficiently in the hands of a Committee consisting of a group of non-governmental experts and their co-opted successors. It was not until the formation of WMO in 1950 that the pattern of international cooperation in meteorology, started in Vienna in 1873 and in Rome in 1879 at the intergovernmental level once more returned to that level.”





Thank you



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