



IAU Centenary Celebrations (1919-2019)

IAU@100 day, Observatoire de Paris/IAP: Oct. 4, 2019

Astronomers as Diplomats: When the IAU builds bridges between nations



IAU@100 day Astronomers as Diplomats

The IAU first president: Benjamin Baillaud and the international cooperation in astronomy

Jean-Louis Bougeret
LESIA – Observatoire de Paris



The IAU first President: Benjamin Baillaud and the international cooperation in astronomy

- 1- Life and academic career
- 2- The making of a President
- 3- The birth of the IAU
- 4- Consolidation until the 1st GA
- 5- Benjamin Baillaud's heritage

Édouard Benjamin Baillaud

1- Life and academic career

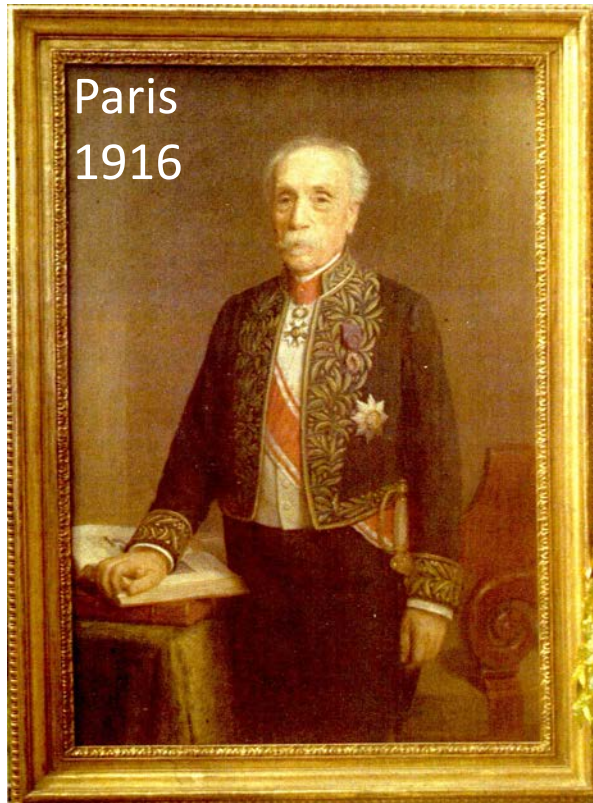
- 1848, Feb. 14: born in Chalon-sur-Saône
- 1866 (18): ENS Ulm
- 1869 (21): normalien agrégé (Mathematics)
- Teaching, Assistant astronomer at Paris Obs.
- 1879 (31)-1908: Director, Toulouse Observatory
Dean, Faculty of Sciences
- 1908 (60)-1926 (78): Director, Paris Observatory
- **1919 (71)-1922: First president of the IAU**
- 1934, July 8 (86): died in Toulouse



20 yrs-old

Benjamin Baillaud

1- Life and academic career



Paris
1916



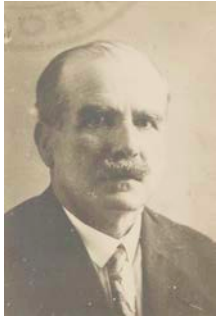
The Baillaud family in Toulouse circa 1898



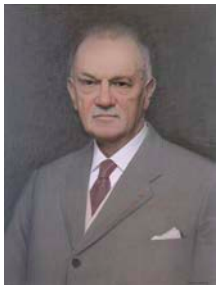
Benjamin Baillaud

1- Life and academic career

Baillaud, famille d'astronomes *Family of astronomers (and academics)*



Jules Baillaud (1876-1960): directed “Carte du Ciel” at Paris Observatory 1922-1947 ; director of Pic-du-Midi Observatory (1937-1947); Academician



René Baillaud (1885-1977): director of Besançon Observatory; starts Chronometry ; corresponding member of the French Academy

Baillaud's descent perpetuates a strong culture of family history

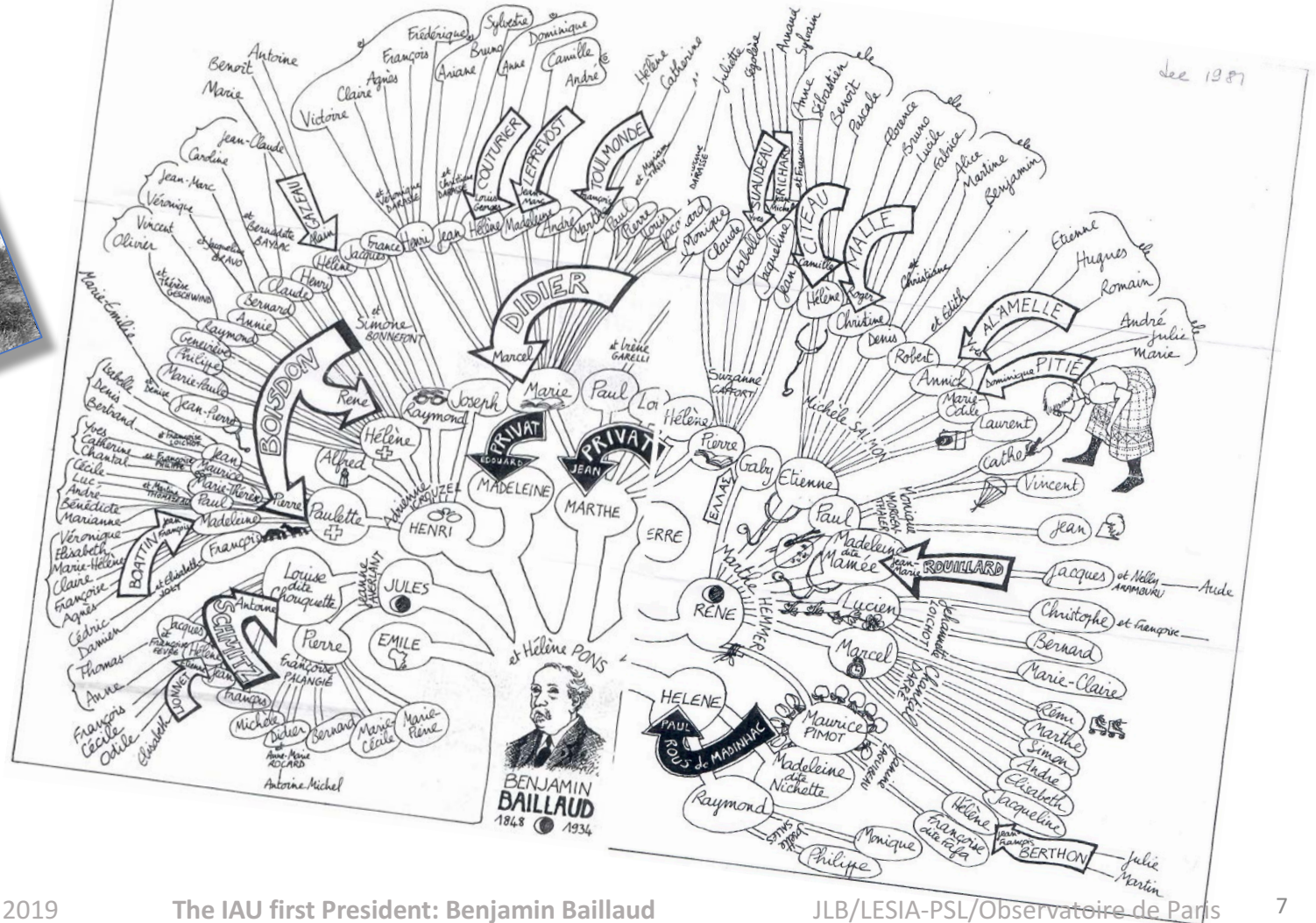
Benjamin Baillaud 1848-1934

1- Life and academic career



Pater familias

More than 6,000 private letters entered on computer: 25 volumes of ~ 250 pages each.



The IAU first President: Benjamin Baillaud and the international cooperation in astronomy

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Until 1919:

- 1) 30-yrs in Toulouse with key administrative responsibilities in higher education and research: extremely successful as director of the Observatory and Dean of the School of Sciences (at 31!). Long lasting, recognized effects (buildings, equipments, personnel). Managed adroitly political aspects.
- 2) 10-yrs experience as director of Paris Observatory.
- 3) Pursued his mathematical research throughout his career
- 4) Initiated or developed international collaborations (CONT)

Implication in international collaborations and programs

- The “*Carte du Ciel*” and the astrometric catalogue (1887)
- The International Solar Union (1904)
- International Congress of Astronomical Ephemerides (1911)
- The “*Bureau International de l’Heure*” (BIH) (1912)

Congrès astrophotographique international,
tenu, en Avril 1887, à l'Observatoire de Paris, pour le levé de la Carte du Ciel.

Paris Observatory – April 16, 1887



Amiral-Mouchez

Baillaud

Implication in international collaborations and programs

- **The “*Carte du Ciel*” and the astrometric catalogue (1887)**
 - **Extremely ambitious:** 15th magnitude, 20-25 millions stars
 - International program (10 observatories in the northern hemisphere; 8 in the southern hemisphere)
 - Strong stimulant for the development of the Toulouse Observatory
 - International Conference at Paris Observatory in April 1909: **Baillaud was unanimously elected chairman** of the permanent international committee of the *Carte du Ciel*

Implication in international collaborations and programs

5th conference of the **International Solar Union** - Bonn, July 30-Aug. 5, 1913



International Union for the Cooperation in Solar Research, created by George Ellery Hale at St. Louis in 1904
Following meetings: Oxford (1905); Paris (1907); Mount Wilson (1910); Bonn (1913)

Four future presidents of the IAU attended!

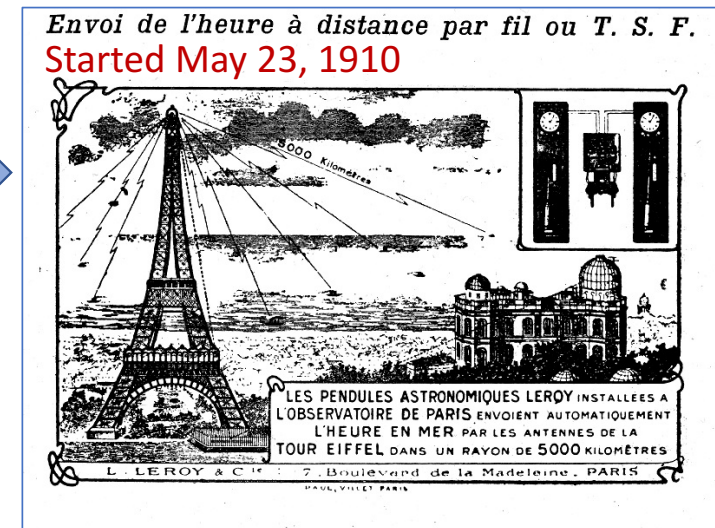
Implication in international collaborations and programs

- **International Congress of Astronomical Ephemerides (1911)**
 - A subject of choice for Baillaud! (Computation and coordination)
 - Convened and led by Baillaud, with the “*Bureau des Longitudes*”
 - Proposals (7 sites, 5 principal almanacs):
 - standardization of the calculations;
 - publication in a unified form;
 - mutual exchange of fundamental ephemerides;
 - fundamental ephemerides, eclipses to be calculated at two locations.
 - (Future IAU Commission 4 will put these in practice)

Implication in international collaborations and programs

• The “*Bureau International de l’Heure*” (BIH) (1912)

- *Bureau des Longitudes* (May 1908)
- Collaboration Baillaud - Gustave Ferrié →
- International Conf. on Time (Oct. 15-23, 1912)
 - Permanent Commission and Bureau in Paris
 - Coordinate results; verify and broadcast UT



- Oct. 1913: Int. Committee asks Baillaud to implement the BIH
- BIH official creation couldn't be ratified before the war
- Baillaud took on daily responsibility of all operations during the war

Implication in international collaborations and programs

- The “*Carte du Ciel*” and the astrometric catalogue (1887)
 - BB elected Chairman in 1909
- The International Solar Union (1904)
 - BB attends meetings 1904-1913
- International Congress of Astronomical Ephemerides (1911)
 - BB convener; proposes resolutions
- The “*Bureau International de l’Heure*” (BIH) (1912)
 - BB director-elect 1912-1919
- International recognition: Pic-du-Midi Observatory; University of Toulouse

The IAU first President: Benjamin Baillaud and the international cooperation in astronomy

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- 4- Consolidation until the 1st GA
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Benjamin Baillaud

3- The birth of the IAU

July 28, 1914 – Nov. 11, 1918

“La der des ders”

“The war to end all wars”

April 1916: **National Research Council** is created, chairman: **G. E. Hale**

April 1917: The US enters war

May 1918: G. E. Hale contacts leading scientific bodies in Europe

Oct. 9-12, 1918: Meeting in London (*)

Nov. 26-29, 1918: Meeting in Paris (**)

July 18-28, 1919: Constitutive Assembly of the **International Research Council** (Brussels)

July 28, 1919: Creation within the IRC of the **International Astronomical Union**



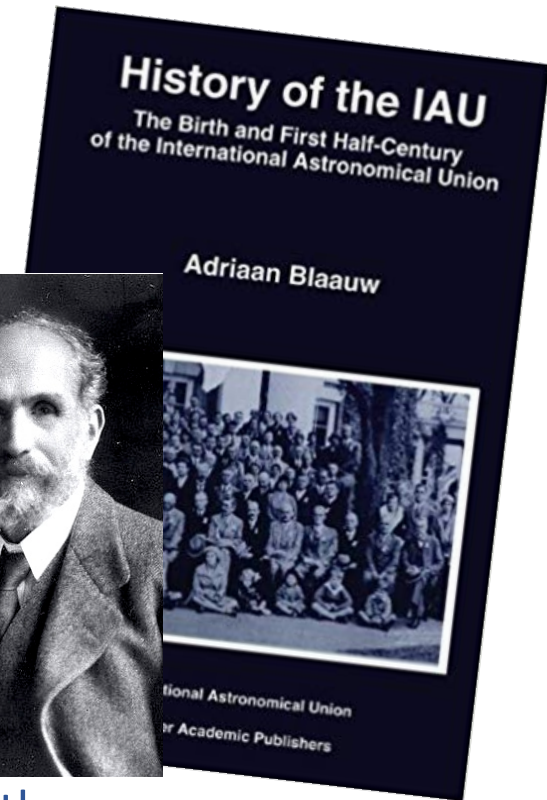
George Ellery
Hale
(NRC)



Émile
Picard
(Acad. Sci.)



Arthur
Schuster
(Royal Soc.)



(*) “The first Inter-Allied Conference on the Future of International Organization in Science”; IAU@100 day, Observatoire de Paris/IAP, Oct. 4, 2019

The IAU first President: Benjamin Baillaud

(**) Where the name IRC was coined
JLB/LESIA-PSL/Observatoire de Paris

The International Research Council (IRC)

- The IRC Executive Committee:
 - President: Émile Picard (France);
 - Vice-Presidents: George E. Hale (US), G. Lecointe (Belgium), and V. Volterra (Italy);
 - General Secretary: Arthur Schuster (GB).
- The IRC had a central role:

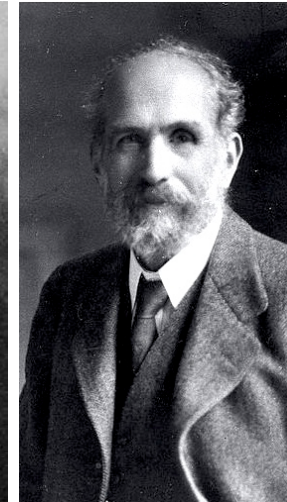
“Only countries which have adhered to the IRC are entitled to be members of the Unions connected with it.”
- Countries from the Central Powers were excluded.



G. E. Hale



Émile
Picard
(Acad. Sci.)
President



Arthur
Schuster
(Royal Soc.)
General Secr.



G. Lecointe



Vito Volterra

The International Research Council (IRC)

- The IRC Constitutive Assembly created: (Brussels, July 18-28, 1919)
 - International Astronomical Union (*the first one on the list!*)
 - International Time Commission (BIH in Paris)
 - International Central Bureau for Astronomical Telegrams (Copenhagen)
 - International Union of Geodesy and Geophysics
 - International Geographical Union; International Mathematical Union; International Union of Geological Sciences; International Union of History and Philosophy of Science; International Union of Pure and Applied Chemistry; International Union of Pure and Applied Physics; International Union of Radio Science.

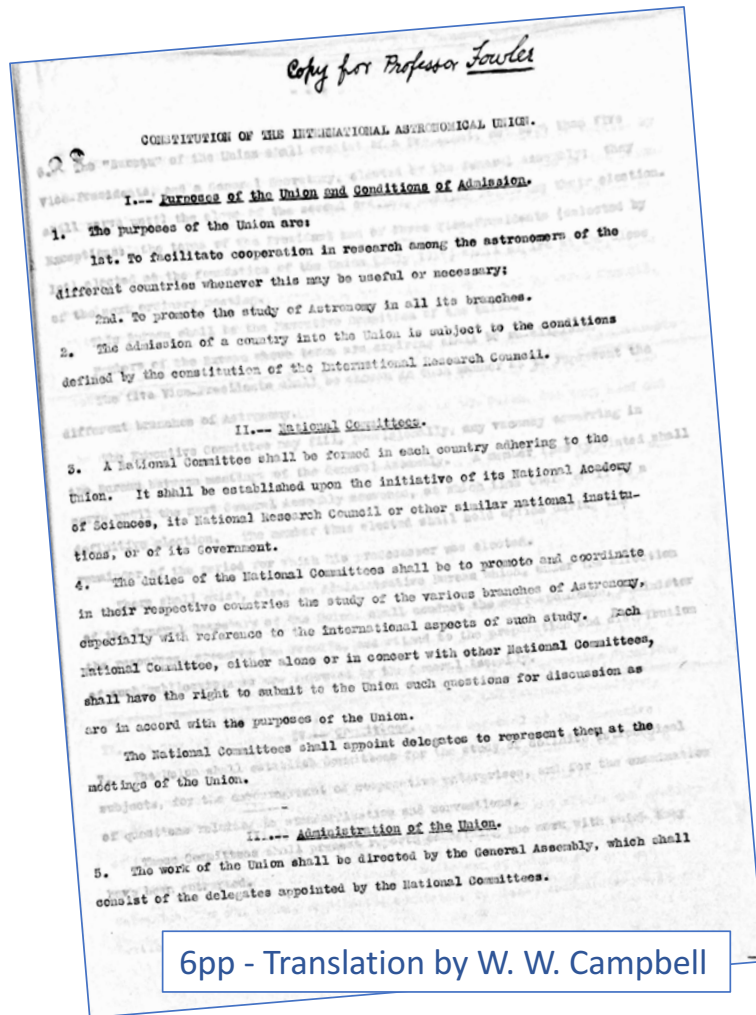
Constitution of the International Astronomical Union

The statutes, drafted by Fowler, have been adopted by the IRC on July 26, 1919

The purposes of the Union are:

- 1) To facilitate cooperation in research among the astronomers of the different countries whenever this may be useful or necessary;
- 2) To promote the study of Astronomy in all its branches.

Statutes published in Transactions of the IAU, vol 1, pp 219-226 (1922)
Text of reference: *Comptes Rendus de l'Académie des Sciences*, vol 169, pp 356-359 (1919)



6pp - Translation by W. W. Campbell

Benjamin Baillaud

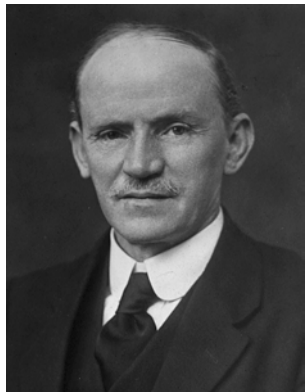
3- The birth of the IAU

The first IAU Executive Committee



Benjamin Baillaud

President

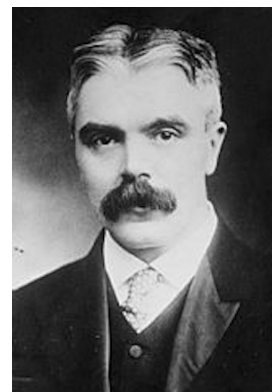


Alfred Fowler

General Secretary



William W. Campbell

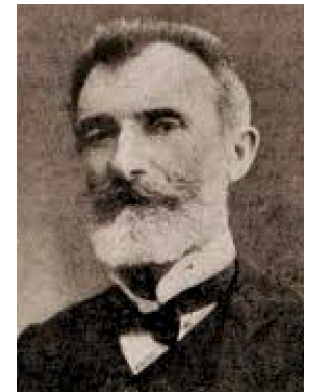


Frank W. Dyson

Vice-Presidents



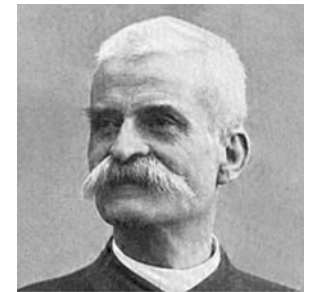
Georges Lecointe



Annibale Riccò

July 28, 1919 - May 10, 1922

Antonio Abetti replaced Annibale Riccò who passed away in September 1919



Antonio Abetti

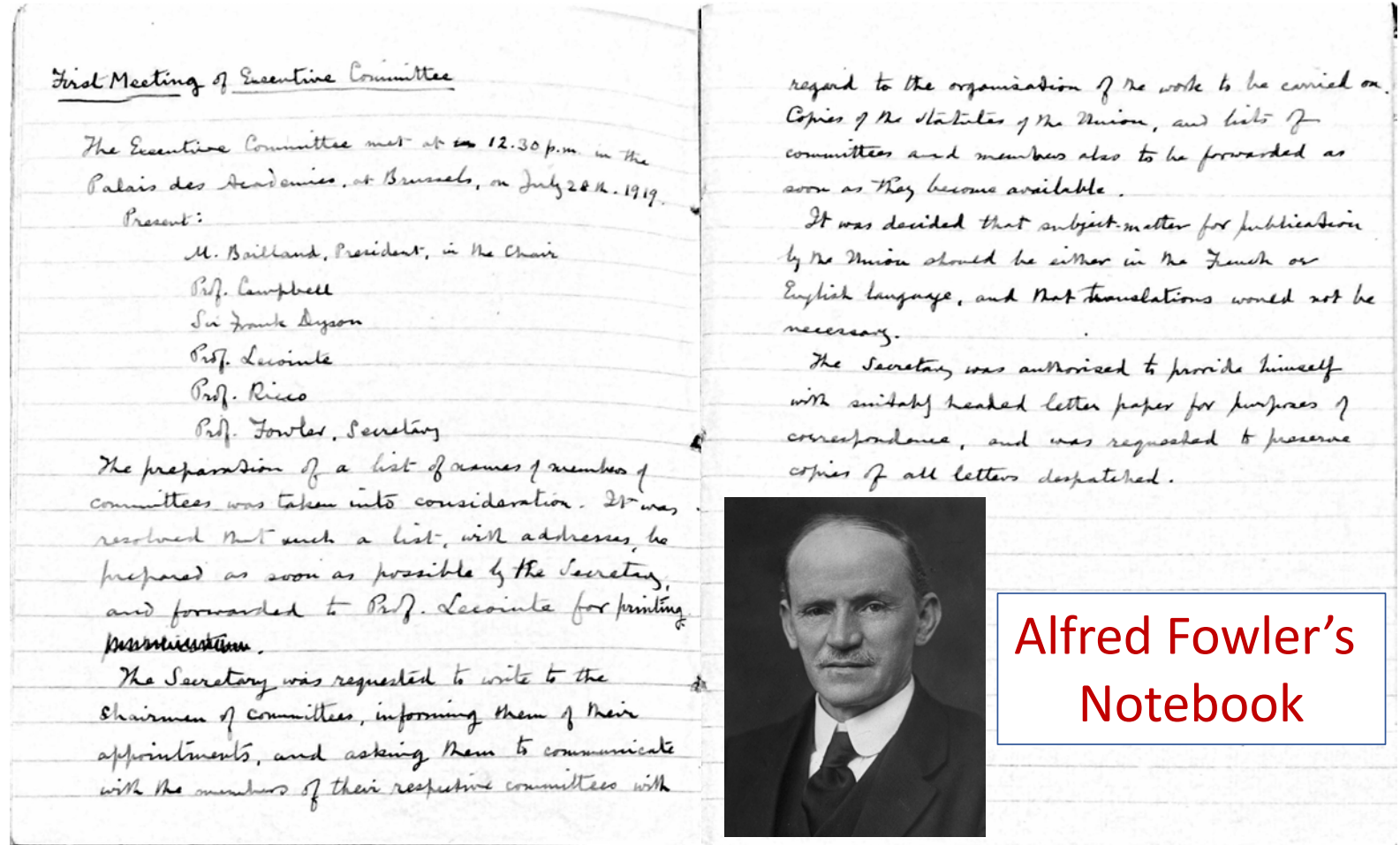
**First meeting of
 Executive Committee
 July 28, 1919**

Prepare a list of names of members of Committees for printing.

Confirm their appointment to chairmen and ask them to organize their work.

Use of either French or English language.

Secretary authorized to use headed letter paper and requested to preserve all letters dispatched.



**Alfred Fowler's
 Notebook**

The 32 IAU Standing Committees

1- Relativity	12- Atmosph. of the Sun	23- Carte du Ciel
2- Publ. Ancient works	13- Astron. expeditions	24- Stellar parallaxes
3- Notations, units (publ)	14- Sun, spectral tables	25- Stellar photometry
4- Ephemerides	15- Rotation of the Sun	26- Double stars
5- Abstracts, biblio	16- Physics of planets	27- Variable stars
6- Astronomical telegrams	17- Lunar Nomenclature	28- Nebulae
7- Celestial mech. Tables	18- Radio Longitude	29- Spectral classification
8- Meridian astronomy	19- Latitude variation	30- Stellar radial velocities
9- Astronomical optics	20- Minor planets	31- Time
10- Solar radiation	21- Comets	32- Calendar reform
11- Spectro. velocities	22- Meteorites	

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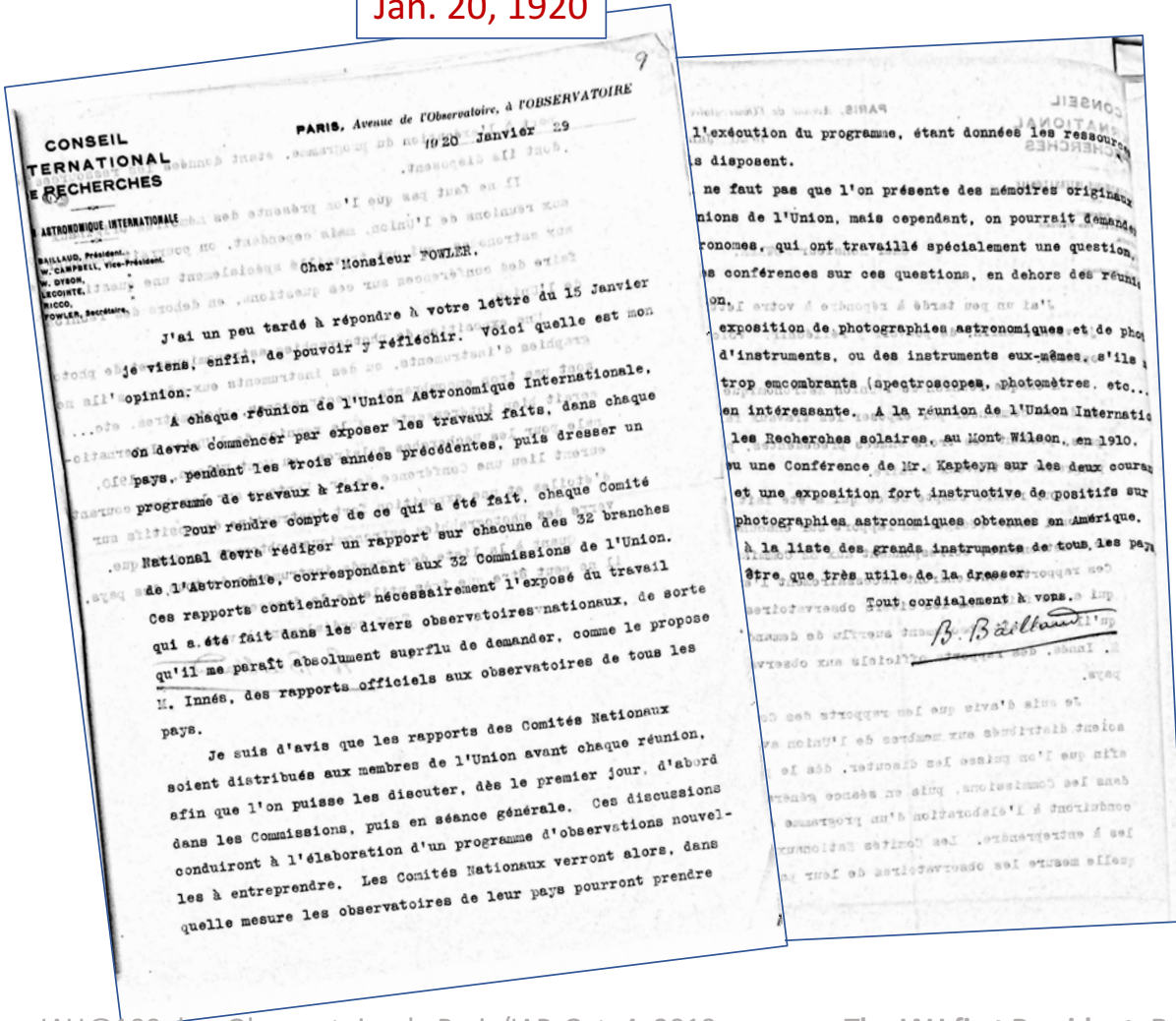
Following the First Executive Committee of the IAU:

- IAU still needs to be formally approved by the IRC:
 - Sufficient number of countries
 - Sufficient amount of subscriptions (large countries needed)
- The 32 Commissions need to be launched
- A place and date has to be determined for the first GA

The IAU archives contain numerous letters, essentially to/from Fowler; also other members and IRC (Schluster); Baillaud for key points, advices.

Benjamin Baillaud

Jan. 20, 1920



4- Consolidation until the 1st GA

January 20, 1920

In a letter to Fowler, Baillaud describes accurately

how the General Assembly should proceed:

mentions national reports, exhibits, invited discourses, etc.

Benjamin Baillaud

4- Consolidation until the 1st GA

June 23, 1920
from IRC to IAU

INTERNATIONAL RESEARCH COUNCIL.
 (CONSEIL INTERNATIONAL DE RECHERCHES).
 PERMANENT DOMICILE: BRUSSELS. GENERAL SECRETARIAT: LONDON.

Burlington House,
 London, W. 1.

Executive Committee:
 E. PICARD, PRESIDENT.
 G. E. HALLS.
 G. LECOINTE.
 V. VOLTERRA.
 A. SCHURTER, GENERAL SECRETARY.

23rd June 1920. 19

Dear Professor Fowler,

I have just heard that Greece is joining the Astronomical Union, so that together with the United Kingdom, the United States, Belgium, Canada and Japan you have a sufficient number of countries to consider the Union as definitely formed. Spain also has written to say that they are joining the Unions though they do not mention the Astronomical Union specifically.

Greece has remitted to me her subscription (1500 francs) and if you do not want the money just at present it would help me considerably if we could keep it temporarily as our printing expenses have been very heavy.

Yours sincerely

Benjamin Baillaud

Professor A. Fowler, F.R.S.

Birth Certificate

July 8, 1920
from IAU to IAU members

INTERNATIONAL RESEARCH COUNCIL
 INTERNATIONAL ASTRONOMICAL UNION.
 (UNION ASTRONOMIQUE INTERNATIONALE)

Executive Committee.
 B. BAILLAUD, President.
 W. W. CAMPBELL, Vice-President.
 F. W. DYSON.
 G. LECOINTE.
 A. ARERTH.
 A. FOWLER, General Secretary.

IMPERIAL COLLEGE,
 LONDON, S.W. 7.

1920.

The General Secretary presents his compliments to the members of the International Astronomical Union, and has pleasure in informing them that the conditions laid down at the Brussels Conference for the formal constitution of the Union have now been fulfilled.

The countries which have definitely signified their adherence to the Union are Belgium, Canada, France, Greece, Japan, the United Kingdom and the United States. In addition, it is understood that steps towards joining the Union have been taken by Australia, Italy and South Africa.

Corrections to the list of members which has already been circulated are enclosed. The General Secretary will be glad to be informed of any further corrections which may be necessary, and members are particularly requested to notify him of any subsequent change of address.

It is hoped that members of the various commissions will do all that is possible to promote the objects for which the Union has been constituted.

As of July 8, 1920:

- Belgium
- Canada
- France
- Greece
- Japan
- UK
- USA

In process:

- Australia
- Italy
- South Africa

The first GA of the IAU
Roma, May 2-10, 1922

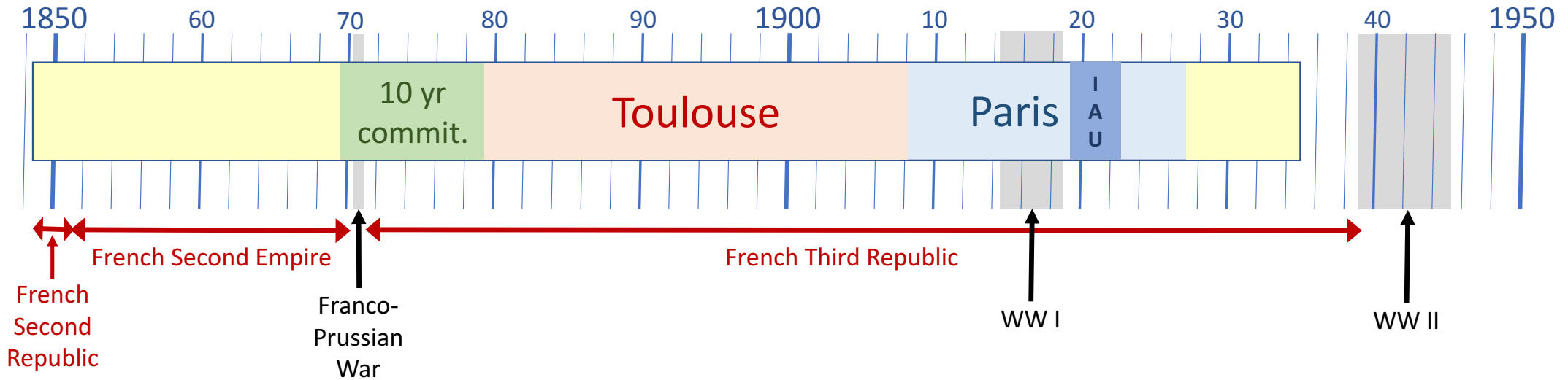


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Benjamin Baillaud 1848-1934

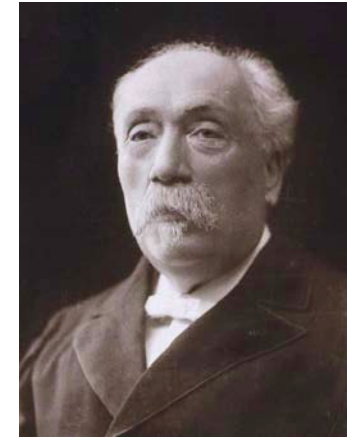
5- Benjamin Baillaud's heritage



- The man:
- strongly republican, great integrity
 - ambitious (a “social duty”): « I have been ambitious, although I have forgotten how to be a plotter. »
 - excellent organizer: Toulouse Obs.= “a minutely regulated factory”
 - respectful, caring and kind

- During the Inter-allied Conference in London, Oct. 9-12 1918: Baillaud proposed the term “Union”:
 - « Unions which contribute more each day to the establishment of concord at the top, between people ».
- Harlow Shapley (1885-1972) in a letter to Lucien Baillaud (grandson) dated March 31, 1967:
 - « Baillaud was a man to whom you could apply the adjective “kindly”. He was a natural internationalist and was therefore very effective in the good-will programs of the IAU ».

Benjamin Baillaud



Thank you, Benjamin!

Acknowledgements to: Suzanne Débarbat, John Hearnshow, Christiaan Sterken, Jean-Claude Pecker, Jérôme Lamy, Thierry Montmerle, Nicole Capitaine;
The Baillaud family: †Lucien Baillaud (Grandson), Jehannette Baillaud, Jacques Schmitz, Bernard and Christophe Baillaud; Cécile and François Lionnet;
The IAU Secretariat: Piero Benvenuti, Teresa Lago, Maria Rosaria D'Antonio, Madeleine Smith-Spanier;
The Paris Observatory Library: Émilie Kaftan.

Thank you!