



ELSEVIER

Contents lists available at ScienceDirect

## Comptes Rendus Physique

www.sciencedirect.com



The *Comptes rendus de l'Académie des sciences* throughout history / Les *Comptes rendus de l'Académie des sciences* à travers l'histoire

## Brief history of the publications of the French 'Académie des sciences'



### Bref historique des publications de l'Académie des sciences

Olivier Hardouin Duparc

LSI, CNRS-UMR7642, École polytechnique, UPS, 91128 Palaiseau, France

#### ARTICLE INFO

##### Article history:

Available online 8 November 2017

##### Keywords:

History of science  
Scientific publications  
Physics

##### Mots-clés:

Histoire des sciences  
Publications scientifiques  
Physique

#### ABSTRACT

This paper traces a brief history of the publications of the French 'Académie des sciences' since their beginnings more than three hundred years ago until today. After reviewing their evolution and various changes, especially for fifty years, it tentatively proposes a possible future for the current *Comptes rendus Physique*.

© 2017 Académie des sciences. Published by Elsevier Masson SAS. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

#### R É S U M É

Cet article propose un bref historique des *Mémoires* et *Comptes rendus* de l'Académie des sciences depuis leurs tout débuts, il y a plus de trois cents ans. Après avoir examiné leur évolution et leurs changements divers, spécialement depuis cinquante ans, il essaye de proposer un possible futur pour les actuels *Comptes rendus Physique*.

© 2017 Académie des sciences. Published by Elsevier Masson SAS. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

From 1699 onwards, the French 'Académie des sciences' started to publish yearly accounts of its activity together with *Mémoires* (Memoirs) by its members [1–4]. This is now available on the website of the French National Library: <http://gallica.bnf.fr/ark:/12148/cb32786820s/date>.

Astronomy took a special place in these Memoirs during the whole eighteenth century, with famous names like the Cassinis, Pierre Louis Moreau de Maupertuis (1698–1759), Joseph Jérôme de Lalande (1732–1807), and Pierre-Simon de Laplace (1749–1827). Among the Memoirs published before the French Revolution, one can follow the discovery of the electrostatic laws by Charles-Augustin Coulomb (1736–1806), the birth of modern crystallography thanks to René-Just Haüy (1743–1822), and of modern chemistry with Antoine Lavoisier (1743–1794). Publication sometimes occurred with exasperatingly long delays.

The activity of the *Académie des sciences* was naturally slowed down during the Revolution. The 'Académies royales' were even dissolved in August 1793 by the same government that instituted the reign of Terror [2,4]. An 'Institut national des sciences et des arts' was created in August 1795. It included an 'Académie des sciences de l'Institut de France', which resumed its yearly publications three years later (partly available at <http://gallica.bnf.fr/ark:/12148/cb343783130/date>).

E-mail address: [olivier.hardouinduparc@polytechnique.edu](mailto:olivier.hardouinduparc@polytechnique.edu).

<https://doi.org/10.1016/j.crhy.2017.10.017>

1631-0705/© 2017 Académie des sciences. Published by Elsevier Masson SAS. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

At the beginning of the nineteenth century, the developing bourgeoisie was willing to be regularly informed about technological and scientific progress. Some newspapers tried to give that kind of information. In 1825, a journalist who had access to the written communications provided during the weekly meetings of the 'Académie' started to publish informal accounts of these meetings. Georges Cuvier, 'secrétaire perpétuel' (permanent secretary) of the Academy for the physics section until his death in 1832, tried to forbid the journalist such an access in 1830, just after his own harsh debate with Étienne Geoffroy Saint-Hilaire [5], and because he thought it was almost "impossible to summarize in an exact manner the various works of which the Academy is concerned" [6]. But more journals started to publish their own accounts of the weekly meetings. Among the journalists was also Jacques Frédéric Saige (1797–1871), a professor of mathematics, who wrote for three different journals, sometimes with a critical tone which infuriated the 'secrétaire perpétuel' François Arago (1786–1853). In March 1835, Arago tried to prohibit these three journals from accessing the communications of the sessions [6–8]. At the same time, he proposed to the Academy to publish weekly reports, prepared at the end of each session by the 'secrétaires perpétuels', thus allowing rapid and official dissemination of scientific results to a wide audience. On 13 July 1835 the decision was made by the Academy to create such a publication. It was named *Comptes rendus hebdomadaires des séances de l'Académie des sciences*, in English *Weekly Accounts of the Meetings of the Academy of Science*. These accounts are now available at <http://gallica.bnf.fr/ark:/12148/cb343481087/date>.

The first issue of the *Comptes rendus hebdomadaires* is dated 3 August 1835. It has only 18 pages and consists of the minutes of the meeting, summarizing the correspondence (letters) received by the Academy, and giving the (short) memoirs and lectures presented during the meeting (plus mention of nominations or special events, of scientific newspapers or books received by the Academy). These published minutes also contained lively accounts (controlled by Arago) of scientific discussions.

Overall, however, the very first years of the new journal are not extremely impressive. French science, extremely brilliant during the beginning of the nineteenth century, had been weakened by the loss of several scientists. To only mention physicists, Laplace, Augustin Fresnel (1788–1827), Joseph Fourier (1768–1830), Sadi Carnot (1796–1832), and André-Marie Ampère (1775–1836) all died before 1836.

In the middle of the nineteenth century, great discoveries were published in the *Comptes rendus*, for instance by Hippolyte Fizeau, Léon Foucault, and Urbain Le Verrier, as reported in this issue. Thus, the journal was in a foremost scientific position at the international level. Towards the end of the century, Henri Becquerel and Pierre and Marie Curie published in the *Comptes rendus* their fundamental advances in the discovery of radioactivity. The *Comptes rendus* also maintained its first rank during the first half of the twentieth century, as reported in this issue.

In the second half of the twentieth century, the amount and variety of notes as well as the volume of the published issues became unbearable, since the *Comptes rendus* were covering all natural sciences in addition to Mathematics. Concerns were explicitly exposed in the early sixties. In a speech delivered at the meeting of 2 January 1963, Arnaud Denjoy, as outgoing president, said that "For many years [certainly more than twenty years!] the plan to split the *Comptes rendus* into two parts corresponding to our two Divisions was envisaged. Émile Picard<sup>1</sup> was obstinately opposed to it." [9]. Jacques Tréfouël wrote two years later as ingoing president that "One of the most complex problems that we are asked is obviously the one related to the *Comptes rendus*. [...] Some scholars object at the gradual invasion of their library by a publication a large part of which is foreign to their activity." [10]

In 1966, the journal was split into four parts: Mathematical Sciences, Physical Sciences, Chemical Sciences and Biological Sciences. Its name was then *Comptes rendus de l'Académie des sciences*. It was no longer an account of the meetings, and no longer weekly. The journal gave up its interdisciplinarity and interactivity. These changes were probably unavoidable, in view of the increasing complexity of Science and of the increasing number of scientists. Science was also becoming more and more worded in English. The *Comptes rendus de l'Académie des sciences* doggedly rejected the English language for many years, but finally accepted it in 1984 and 99% of the notes are now in English. The same year, the number of journals was increased to five (Mathématique, Sciences de la Terre et des planètes, Mécanique–Physique–Astronomie, Chimie, Sciences de la vie) with an additional general publication called *La vie des sciences* (<http://gallica.bnf.fr/ark:/12148/cb343924404/date>), which was suppressed in 1996. In 2002 a new change occurred and since that year there are seven journals, see <http://www.academie-sciences.fr/en/Overview/the-comptes-rendus.html>.

Thus, while the *Comptes rendus hebdomadaires des séances de l'Académie des sciences* had been published with the same title and the same style for 131 years, they experienced frequent changes during the past half century. This presumably reflects the uneasiness of scientists facing drastic changes such as those brought by the multiplication of international scientific journals, immediate dissemination via the World Wide Web medium and the evaluation of journals via statistical means such as the measurement of the average number of quotations per published paper (the so-called impact factor). It is worth noting that the current *Comptes rendus Physique* have been publishing more and more thematic issues for almost a decade with in-depth articles: this could very well be a solution which should be encouraged for the future.

<sup>1</sup> 'Secrétaire perpétuel' for the mathematical sciences from 1917 until his death in 1941.

## Acknowledgements

I thank the librarians of the archive services of the 'Académie des sciences', Paris, of the 'École polytechnique' at Palaiseau, the Saclay Nuclear Research Center (CEA), and of the 'Institut Henri-Poincaré', Paris. Not everything, by far, is electronically available and paper libraries, with dedicated librarians, are still very important sources of knowledge. I also thank Jean-Yves Chapron, head of publications of the 'Académie des sciences'.

## References

- [1] Histoire de l'Académie royale des sciences, tome I: 1666–1686, tome II: 1686–1699, Paris 1733. III+448 p. and 270 p.
  - [2] J. Bertrand, L'Académie des Sciences et les Académiciens de 1666 à 1793, J. Hetzel, Paris, 1869, IV+435 p.
  - [3] Académie des Sciences, Troisième centenaire 1666–1966, two volumes, Gauthier-Villars, Paris, 1967, XIV+496 p. and 484 p.
  - [4] Index biographique de l'Académie des sciences 1666–1978, Gauthiers-Villars, Paris, 1979, 513 p., + Supplément 1978–1993, 1994, 133 p.
  - [5] J. Piveteau, Le débat entre Cuvier et Geoffroy Saint-Hilaire sur l'unité de plan et de composition, *Rev. Hist. Sci. (Paris)* 3 (1950) 343–363.
  - [6] M. Daumas, Arago: 1786–1853, la jeunesse de la Science, Belin, Paris, 1987, 303 p. [Book written by Maurice Daumas in 1943, republished with a preface by Jean Dhombres and additional notes and references by Emmanuel Grison.]
  - [7] F.-V. Raspail, Nouveau système de chimie organique, 2nd edition, 1839 [In the *avertissement historique*].
  - [8] J. Lequeux, François Arago, un savant généreux: physique et astronomie au XIX<sup>e</sup> siècle, EDP Sciences, Paris, 2008, 525 p.; Translated in: François Arago. A 19th Century French Humanist and Pioneer in Astrophysics Springer, 2016, IX+334 p.
  - [9] C. R. Hebd. Séances Acad. Sci. Paris 256 (1963) 19–22.
  - [10] C. R. Hebd. Séances Acad. Sci. Paris 260 (1965) 21–24.
- Plus, of course, the World Wide Web links given in the text.