

The discovery of some articles of Italian physicists in a journal directed in 1948 by Giovanni Polvani

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Summary. — In the period after the Second World War, Giovanni Polvani directed a journal entitled *IL FILOMATE. Rivista di Scienze matematiche, Fisiche e Naturali*, which was published exclusively in 1948 for only a few issues by Dott. Carlo Marzorati publishing house in Milan. Inside this journal, it was possible to find some papers written by the following Italian physicists: Giovanni Polvani himself, Giuseppe Cocconi, Vanna Tongiorgi, Nello Carrara, Carlo Salvetti, Luigi Puccianti, Bruno Ferretti, Augusto Occhialini, and Giorgio Valle. These papers dealt with various physics subjects such as, among others, cosmic rays, radar, and electrical conduction in gases.

1. – Introduction

The goal of this paper is to illustrate the results of the author's research that points out the discovery of some articles written by some Italian physicists that were published into a journal, entitled *IL FILOMATE. Rivista di Scienze matematiche, Fisiche e Naturali* (1948). This journal was directed by Giovanni Polvani, Full Professor of Experimental Physics at the University of Milan (Italy) and edited by Dott. Carlo Marzorati, a publishing house based in Milan. The journal *IL FILOMATE* originated from the project presented on 25 September 1947 by four full professors from the University of Milan: Giovanni Polvani (1892–1970), who assumed the role of director of the journal, Guido Ascoli (1887–1957), Adolfo Quilico (1902–1982), and Silvio Ranzi (1902–1996), who assumed the role of co-directors. The direction and the administration of the journal was placed with the publisher of the same, Dott. Carlo Marzorati, Via Borromei, 11, Milan. The *IL FILOMATE* journal was published exclusively in 1948, including only four issues, on a bimonthly basis (see fig. 1).

A characteristic element that it is necessary to point out is that there were many famous academic professors who had given their consensus to collaborate with this journal: 19 professors in Physics, 19 professors in Mathematics, 17 professors in Natural Sciences, 7 professors in Chemistry and 4 professors in Geography. Analyzing four issues of the journal, it was possible to find, among others, some articles written by some Italian physicists: Giovanni Polvani; Giuseppe Cocconi (1914–2008); Vanna Tongiorgi

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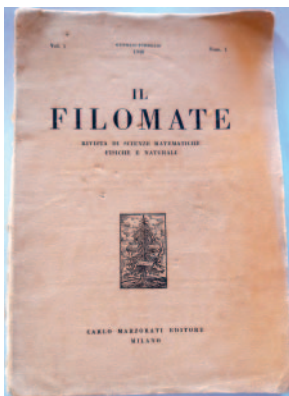


Fig. 1. – Journal frontispiece, Vol. 1, n. 1 (1948).

(1917–1997); Nello Carrara (1917–1997); Carlo Salvetti (1918–2005); Luigi Puccianti (1875–1952); Bruno Ferretti (1913–2010); Augusto Occhialini (1878–1951); Giorgio Valle (1888–1953). The articles written by these physicists in the *IL FILOMATE* journal dealt with various subjects, such as, among others, cosmic rays, radar, and electrical conduction in gases. These subjects were drafted following academic scientific exactitude, and this even if the *IL FILOMATE* journal was not an academic journal. In fact, as indicated by the same Director of the journal Giovanni Polvani, it was dedicated to high school professors, to give them the way and the possibility to brush up their knowledge in scientific subjects (physics, chemistry, natural sciences or geography).

2. – “IL FILOMATE. Rivista di Scienze matematiche, Fisiche e Naturali”

By examining the Catalogue of Library of the Scuola Normale Superiore (SNS) of Pisa, I found the four issues of the *IL FILOMATE. Rivista di Scienze matematiche, Fisiche e Naturali*. Since biographies of Giovanni Polvani did not report the direction of this journal, it was decided to further analyze the journal itself, as well as the articles contained in it. Considering the presentation of the journal done by the Director Giovanni Polvani on 25 September 1947, together with co-directors Guido Ascoli, Adolfo Quilico, and Silvio Ranzi, it is possible to point out that the journal had scientific-didactic objectives, being directed to high-school teachers to permit them to update their knowledge thanks to the contributions present in the various sections of the journal. The journal had some regular sections, titled in the following ways (in Italian): Saggi e Studi; Questioni Didattiche, Antologia delle Scienze, Storia delle Scienze; Antologia e Storia delle Scienze; In Biblioteca; In Memoria. The journal also had the collaboration of many professors of various Italian Universities (totally 66), who covered five scientific areas: 19 on Physics, 19 on Mathematics, 17 on Natural Sciences, 7 on Chemistry, and 4 on Geography. In particular, the 19 Professors in Physics were: Giorgio Abetti (1882–1982); Edoardo Amaldi (1908–1989); Gilberto Bernardini (1906–1995); Gilberto Bolla (1901–1980); Ercole Bottani (1897–1978); Gino Bozza (1899–1967); Piero Caldirola (1914–1984); Nello Carrara; Antonio Carrelli (1900–1980); Gino Cassinis (1885–1964); Giuseppe Cocconi; Amedeo Giacomini (1905–1979); Augusto Occhialini; Luigi Puccianti; Enrico Persico (1900–1969); Antonio Rostagni (1903–1988); Orazio Specchia (1890–1961); Giorgio Todesco (1897–1958); Giorgio Valle.

3. – The presence of “IL FILOMATE” in the Italian Libraries

The Italian libraries where all four issues of the journal *IL FILOMATE* are present are the National Central Library of Florence, the National Central Library of Rome, the Library of Scuola Normale Superiore (SNS) of Pisa, the Library of “Biology, Computer Science, Chemistry and Physics” of the University of Milan. In Italian libraries it is not possible to find more than four issues of *IL FILOMATE*. As a demonstration of the possible difficulties that the journal encountered from the beginning, it is possible to observe that the first issue (January-February 1948) was printed on 31 December 1947, the second issue (March-April 1948) was printed on 30 March 1948, the third issue (May-June 1948) was printed on 25 September 1948, the fourth issue (July-August 1948) was printed on 31 January 1950. Considering all these elements, one result of the research is that *IL FILOMATE* was printed by referring to only four issues in 1948.

4. – Physicists’ articles in the four issues of “IL FILOMATE”

When carefully examining all the four issues of *IL FILOMATE*, it has been possible to notice that they also included various articles written by Italian Physicists (see table I). These articles dealt with various subjects: Giuseppe Cocconi and Vanna Tongiorgi presented a synthesis and a historical survey of their studies regarding cosmic rays; Nello Carrara presented a synthesis of his studies on radar; Carlo Salvetti wrote some reviews concerning books on nuclear physics, which were, according to his opinion, interesting; Luigi Puccianti presented an original method to teach intervals and musical scales; Bruno Ferretti proposed its comments to a scientific photograph; Augusto Occhialini presented some simple experiments with the inclined plane and falling bodies; Giorgio Valle proposed a synthesis of his studies about the electrical conduction in gases; Giovanni Polvani wrote about a new Italian journal, published in 1947, titled “La Riforma della Scuola” and about teaching physics in high school.

It is worth pointing out that Bruno Ferretti commented a picture —made in January 1947 at Bristol (UK) by Giuseppe Occhialini (1907–1993) and Cecil Frank Powell (1903–1969, Nobel Prize in Physics in 1950)— representing the splitting of the nucleus of bromine or silver caused by a cosmic radiation particle. Such a picture had been given to Bruno Ferretti by Augusto Occhialini, Giuseppe Occhialini’s father. According to Giuseppe Cocconi and Vanna Tongiorgi, the origin of cosmic radiation is unknown but it can be considered composed of primary and secondary radiation.

5. – Conclusions

The following elements deserve to be emphasized as results of this study:

- the *IL FILOMATE* journal was aimed to propose a high-level scientific dissemination of Physics novelties devoted to high school teachers; it can be considered as a precursor of the *Giornale di Fisica* founded in 1956 by Giovanni Polvani, while its scientific-didactic aims make it not comparable to other scientific academic journals, such as *Il Nuovo Cimento*, *Gli Atti della Reale Accademia dei Lincei* or *La Ricerca Scientifica*;
- most of articles are devoted to Physics and most of authors belong to the University of Pisa (Luigi Puccianti, Giovanni Polvani, Nello Carrara, Augusto Occhialini) and the University of Milan (Giuseppe Cocconi, Vanna Tongiorgi, Carlo Salvetti); it is

TABLE I. – *Articles, written by Italian Physicists in the four issues of IL FILOMATE.*

Volume I – Gennaio-Febbraio 1948 – Numero 1

- Giovanni Polvani, “In macchina. . .”, pp. III-IV.
 - Giuseppe Cocconi and Vanna Tongiorgi, “Perché si studiano i raggi cosmici”, pp. 22–30.
 - Nello Carrara, “Il Radar”, pp. 31–37.
 - Carlo Salvetti, “Uno sguardo ad alcuni libri recenti e di fisica nucleare”, pp. 74–75.
 - Giovanni Polvani, in “Documenti e Commenti”: “Una nuova rivista ministeriale”, “A proposito di una circolare ministeriale sull’insegnamento della matematica”, “Avvertenze ai programmi francesi in fisica”, “A proposito della storia del pensiero scientifico”, pp. 76–78.
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Volume I – Marzo-Aprile 1948 – Numero 2

- Luigi Puccianti, “Regolo musicale a scala logaritmica”, pp. 100–107.
 - Nello Carrara, “Il Radar (Continuazione e fine)”, pp. 108–111.
 - Bruno Ferretti, “Esplosione nucleare”, pp. 112–113.
 - Augusto Occhialini, in “Questioni Didattiche”: “Il Museo di Fisica delle Scuole Medie: Esperimenti sulla caduta dei gravi”, pp. 137–139.
 - Carlo Salvetti, in “In Biblioteca”: “Un bel libro di Fisica nucleare”, pp. 155–156.
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Volume I – Maggio-Giugno 1948 – Numero 3

- Giorgio Valle, “Conduzione elettrica nei gas”, pp. 167–180.
 - Augusto Occhialini, in “Il Museo di Fisica delle Scuole Medie”: “II - Esperimenti sulle Forze”, pp. 204–206.
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Volume I – Luglio-Agosto 1948 – Numero 4

- Giorgio Valle, “Conduzione elettrica nei gas (Continuazione e fine)”, pp. 255–267.
 - Giovanni Polvani, in “Questioni Didattiche”: “Gli studi classici visti dallo scienziato”, pp. 285–288.
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worth mentioning that Enrico Fermi (Nobel prize in Physics in 1938) graduated under the supervision of Luigi Puccianti;

- the fourth issue was printed very late (in January 1950) and this witnesses the troubles suffered by the journal from its very beginning; the fact that Giovanni Polvani in 1947 became chair of “Società italiana di Fisica” (SIF) may have suggested to close such an ambitious project in favour of new activities within SIF.

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