

MR2310967 (2008b:01008) 01A60 (01A50 51-03)

Marchisotto, Elena Anne (1-CASN); **Smith, James T.** (1-SFSU)

★**The legacy of Mario Pieri in geometry and arithmetic.**

With a foreword by Ivor Grattan-Guinness.

Birkhäuser Boston, Inc., Boston, MA, 2007. xx+494 pp. \$129.00. ISBN 978-0-8176-3210-6

The Italian mathematician Mario Pieri died in 1913 at the age of 52 highly respected by those who knew him and his work. Though the latter included the likes of Giuseppe Peano, Bertrand Russell, Alfred Tarski, and several key American mathematicians (M. Bôcher, E. B. Wilson, E. V. Huntington, and O. Veblen), Pieri's work never rose to a high level of recognition. The authors argue that not only does his work deserve to be given a higher profile in history and "debts should be acknowledged" (p. 371), but also that it still has relevance for modern research in the areas of complex projective and inversive geometries. They are clearly also taken on a personal level by Pieri, "whose gentle, scholarly nature has become very evident to us" (p. 370). This concern for their subject shows through especially in the many ways they have tried to make the volume accessible for readers. Instead of a more conventional treatment of life, works and influence, unified as a linear biography, the authors have provided in effect a collection of reference materials that are unified by summaries, overviews, cross references and an excellent index. The ordering of the parts might be questioned, but this modular structure makes it possible to include, for example, a 60-page mini-biographical encyclopedia of 96 people mentioned elsewhere in the volume, from Federico Amodeo to H. G. Zeuthen. The main parts of the volume are: biography; foundations of geometry work; a full translation of Pieri's "La geometria elementare istituita sulle nozioni di 'punto' e 'sfera'" [Mem. Mat. Fis. Soc. Ital. Sci. (3) **15** (1908), 345–450] with annotation, followed by historical and critical remarks; description of work on foundations of arithmetic, 1906 and 1907; and the influence of Pieri's work in these areas, especially with respect to the schools of Peano (of which Pieri was a prominent member) and Tarski. In the process, a sizeable part of Italian mathematics is discussed, including V. Volterra, C. Burali-Forti, and B. Levi. This is followed by a detailed bibliography of Pieri's works, including manuscripts and letters. In spite of no organized Nachlass, much archival material has been located in Italy and elsewhere.

Pieri's work in the foundations of mathematics lay "in the shadow of giants" (p. 370), and the reason for this eclipse is given here largely in external terms: if only his work had been better appreciated, he might have been more visible if not a giant himself. On the face of it, this appears to be contradicted by the acknowledgments given his work by some of the giants themselves and cited here in support of his importance. The planned two succeeding volumes may address this issue if they take a more internal approach and investigate more closely how his work was used: the second volume will focus on further research in foundations and relate it to others, Russell in particular; the third volume will treat Pieri's work in algebraic and differential geometry.

Reviewed by *Albert C. Lewis*

