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ABOUT THE COVER: *ARS CONJECTANDI* AND JACQUES BERNOULLI

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The year 2013 marks the 300th anniversary of the publication of *Ars Conjectandi* by Jacques (Jacob) Bernoulli [1]. It has been a great pleasure to collaborate with the American Mathematical Society to feature the invited contribution of Professor Manfred Denker [2] in this issue of the *Bulletin of the American Mathematical Society* that addresses some of both the historic and contemporary impacts of this landmark publication from the perspectives of probability and statistics. The publication of Professor Denker's insightful article is one among many of the ways in which learned societies around the world are striving to celebrate 2013 as an *International Year of Statistics (Statistics2013)*; http://www.statistics2013.org/.

There is indeed much to celebrate with regard to the roles that mathematics has played, and continues to play, in revealing the world through the mathematical lens of probability and statistics. What stands out most for me in reflecting on Jacob Bernoulli's quest to identify and quantify regularities in the face of uncertainty is a spirit that lurks behind so many successful renderings of natural phenomena in mathematical terms. In particular, in recognizing the publication of *Ars Conjectandi*, we are celebrating an important symbol of what can be achieved through observation, data, and mathematical thinking. The seemingly simple quantity $P(f(X) > a)$, viewed in its broadest interpretations, embodies a quantification of uncertainty that lies at the heart of an immense span of deep mathematical theory and application. Therein, one finds a power, a beauty, and an intrigue of probability and statistics. The scope is immeasurable. As Professor Denker aptly demonstrates, the consequences for a yet deeper mathematical understanding and the uncovering of intricate connections to other mathematical objects are the fruit of such fundamental concepts, as elucidated in the *Ars Conjectandi*.

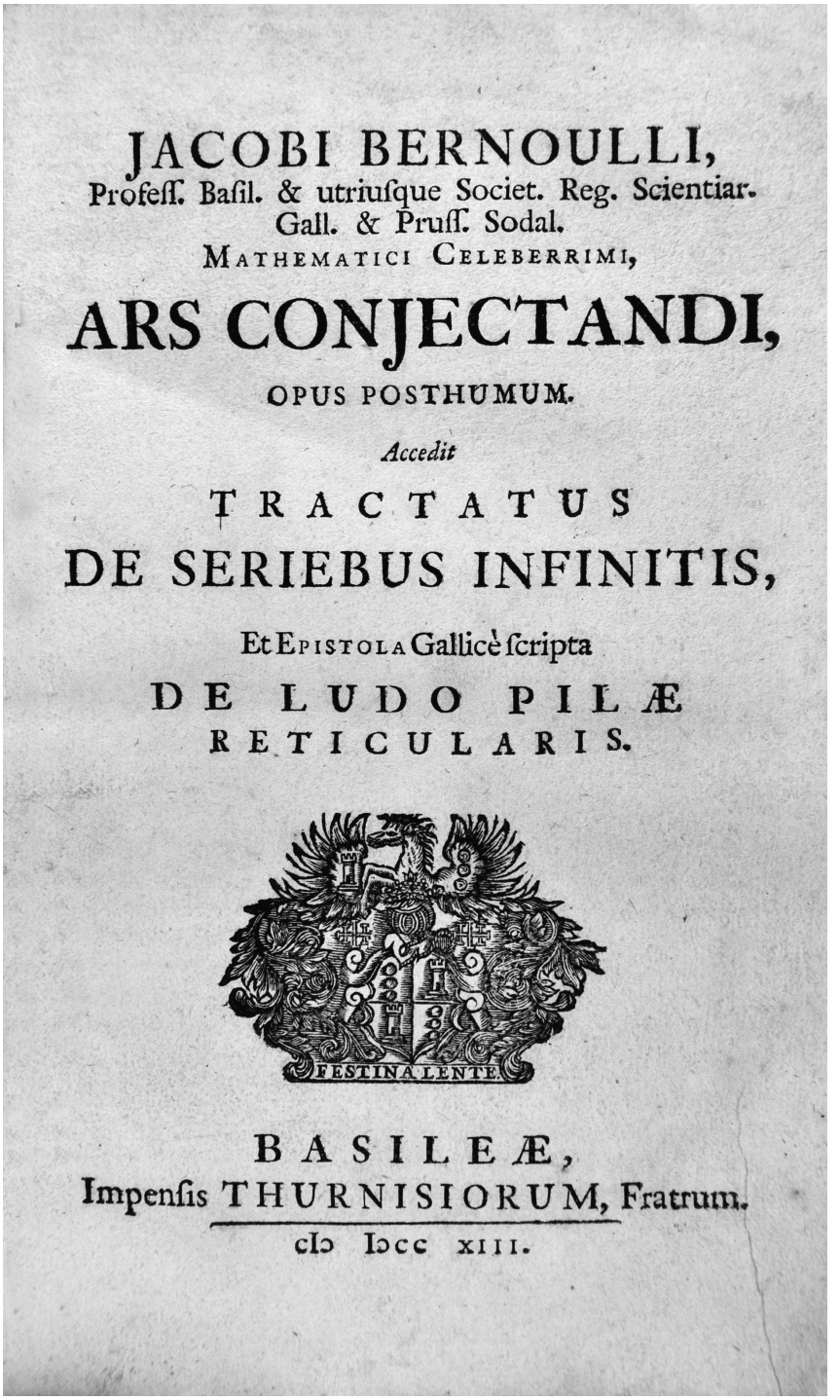
JACOBI BERNOULLI,
Profeſſ. Baſil. & utriuſque Societ. Reg. Scientiar.
Gall. & Pruſſ. Sodal.
MATHEMATICI CELEBERRIMI,
ARS CONJECTANDI,
OPUS POSTHUMUM.
Accedit
TRACTATUS
DE SERIEBUS INFINITIS,
Et EPISTOLA Gallicè ſcripta
DE LUDO PILÆ
RETICULARIS.
FESTINA LENTE
BASILEÆ,
Impenſis THURNISIORUM, Fratrum.
cIↃ IↃcc xIII.

FIGURE 1. Clear copy of the cover: the title page of Bernoulli's posthumously published *Ars Conjectandi*.

FIGURE 2. Portrait of Bernoulli from *Ars Conjectandi*.

Beyond the richness inherent in the unique perspective that statistical and probabilistic thinking continue to inspire in purely mathematical developments, contemporary socio-political issues pertaining to risk assessment serve as striking reminders of the importance of proper communication of the scope of mathematical theories and applications in relation to the law. It is apparent that the future of risk assessment and uncertainty pertaining to increasingly sophisticated developments in genetics, cyber security, finance, communication systems, and beyond will only increase the challenges to the proper mathematical reckoning with uncertainty already experienced 300 years ago. So, while we are celebrating yet another highly valued achievement in the mathematical sciences, let this also serve as recognition of the important challenges that lie ahead. On behalf of the Bernoulli Society and the American Mathematical Society, our gratitude is extended to Professor Manfred Denker for communicating this so well by means of his own stimulating article, *Tercentennial Anniversary of Bernoulli's Law of Large Numbers*, in this issue of the *Bulletin*.

The title page of the original issue of *Ars Conjectandi* (1713) is reproduced on the cover of this issue of the *Bulletin*. This and a portrait of Jacob Bernoulli are included in Figures 1 and 2, respectively. These ilustrations were provided courtesy of G. L. Alexanderson and L. F. Klosinski.

About the author

The author is president of the Bernoulli Society for Mathematical Statistics and Probability. He is partially supported by awards DMS 1031251, 1122699 from the National Science Foundation.

References

[1] Jacob Bernoulli, *Ars Conjectandi, opus posthumum, Accedit Tractatus de seriebus infinitus, et epistola gallicé scripta de ludo pilæ reticularis*, Basel, Thurneysen Brothers, 1713.

[2] Manfred Denker, *Tercentennial anniversary of Bernoulli's law of large numbers*, Bull. Amer. Math. Soc. (N.S.) **50** (2013), 373–390.

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