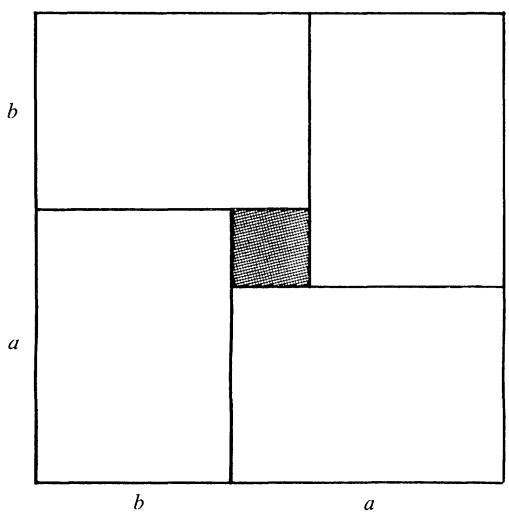
Proof without Words: The Arithmetic Mean-Geometric Mean Inequality
Author(s): Doris Schattschneider
Source: *Mathematics Magazine*, Vol. 59, No. 1 (Feb., 1986), p. 11
Published by: Taylor & Francis, Ltd. on behalf of the Mathematical Association of America
Stable URL: https://www.jstor.org/stable/2690011
Accessed: 18-09-2024 22:50 UTC

I am grateful to the editors and a referee for their help in the preparation of this article and to Brian Winkel for valuable information and advice. I offer much-belated thanks to Chuck Oravec for introducing me to Kahn's *The Codebreakers*.

References

[1] H. Beker and F. Piper, Cipher Systems: The Protection of Communications, John Wiley and Sons, 1982.
[2] Cryptologia, Rose-Hulman Institute of Technology, Terre Haute, Indiana.
[3] W. F. Friedman, The Index of Coincidence and Its Application in Cryptography, Riverbank Laboratories, Publication No. 22, Geneva, Illinois, 1922.
[4] _____, Jules Verne as cryptographer, Signal Corps Bull., (1940) 70–107. This article is reprinted in Cryptography and Cryptanalysis Articles, v. 2, Aegean Park Press, Laguna Hills, California, 1976.
[5] H. F. Gaines, Cryptanalysis, Dover, New York, 1956.
[6] Martin Gardner, A new kind of cipher that would take millions of years to break, Scientific American, 237 (1977) 120–124.
[7] C. W. R. Hooker, The Jules Verne cipher, The Police Journal, London, 4 (1931) 107–119.
[8] David Kahn, The Codebreakers, Macmillan, New York, 1967.
[9] _____, Kahn on Codes, Macmillan, New York, 1983.
[10] S. Kullback, Statistical Methods in Cryptanalysis, Aegean Park Press, Laguna Hills, California, 1976.
[11] A. Lempel, Cryptology in transition, ACM Computing Surveys, II (1979) 280–303.
[12] A. Sinkov, Elementary Cryptanalysis—A Mathematical Approach, The New Mathematical Library no. 22, Mathematical Association of America, Washington, D.C., 1968.
[13] Jules Verne, Voyage au Centre de la Terre, Hetzel, Paris, 1864. Journey to the Center of the Earth, Dodd, New York, 1984.
[14] _____, La Jangada, Hetzel, Paris, 1881. Eight Hundred Leagues on the Amazon, Didier, New York, 1952.
[15] _____, Mathias Sandorf, Hetzel, Paris, 1885. Mathias Sandorf, Hachette, Paris, 1979.

Proof without words: The arithmetic mean–geometric mean inequality



$$(a+b)^2-(a-b)^2=4ab$$

$$\frac{a+b}{2}\geqq\sqrt{ab}$$

—Doris Schattschneider
Moravian College