

Scales (On Steroids)

History and provenance

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The counterfeit-coin tradition

Balance-scale puzzles form a large family. The familiar twelve-object problem asks for the one different object in three weighings without knowing in advance whether it is heavy or light. Guy and Nowakowski survey the broader coin-weighing literature [1]. Khovanova and Knop distinguish E. D. Schell's January 1945 problem in *The American Mathematical Monthly*, involving nine coins with one known to be lighter, from a roughly contemporary twelve-coin problem in which the odd coin could be heavier or lighter [2].

Two different information requirements

The nine-stone opening question tells the solver that the odd stone is heavier. The twelve-stone version does not. These are different search problems, not merely different numbers of stones.

The balance has three possible outcomes, so the puzzles also give an elementary example of information limits and decision trees. Many valid three-weighing trees exist. The accompanying solution supplies one complete tree and identifies both the object and whether it is heavier or lighter.

Schell's nine-coin question and the twelve-coin question therefore have distinct publication histories. These documented appearances do not establish who first invented either puzzle.

Sources

- [1] Richard K. Guy and Richard J. Nowakowski, Coin-Weighing Problems, *The American Mathematical Monthly* (1995).
<https://www.jstor.org/stable/2975353>
- [2] Tanya Khovanova and Konstantin Knop, Coins of Three Different Weights (2014), arXiv:1409.0250.
<https://arxiv.org/abs/1409.0250>

Sources checked September 7, 2026. A documented appearance is not necessarily the earliest appearance.