Contents

The features marked with a star (*) are based entirely on material taken straight from standard research (and other Official and Therefore Always Correct) literature. Many of the other articles are genuine, too, but we don't know which ones.

ANNALS OF IMPROBABLE RESEARCH

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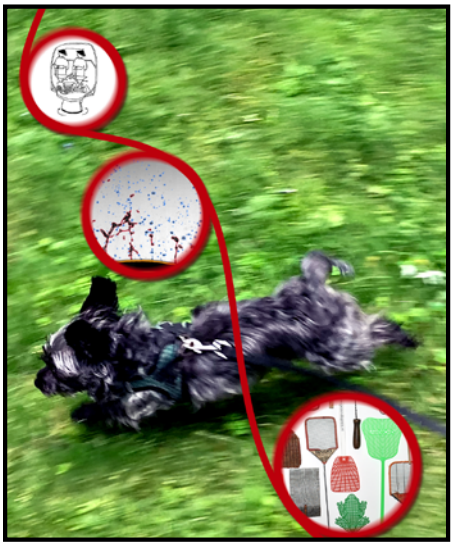
There's always new improbable — it's not what you expect! — stuff on the **Improbable Research blog** at IMPROBABLE.COM



On the Front Cover
A variety of examples of motion.
Dog zooms photo by A.S. Kaswell.

Some Coming Events

(See IMPROBABLE.COM for details of these and other events.)

September 18, 2025
— The 35th First Annual Ig Nobel Prize Ceremony

September 20, 2025
— Ig Nobel Face-to-Face

October 31, 2025
— Ig Nobel Face-to-Face, London, UK

November 7-9, 2025
— Falling Walls, Berlin, Germany

November 12, 2025
— Monell Center, Philadelphia, USA

November TBA, 2025
— Ig Nobel Face-to-Face, Tokyo, Japan

March/April 2026
— Ig Nobel EuroTour

Fly-Swatters and Flies

Interspecies weaponry appreciated and analyzed

compiled by K. Earhart Cratch, Improbable Research staff

Fly-swatters are tools that represent humanity's best simple efforts to match or exceed the motions of houseflies.

Fly-Swatter Collection

Iza van Riemsdijk, a retired nephrologist, amassed what is believed to be the world's largest collection (other than factory or warehoused mass-manufactured stocks of identical fly-swatters) of fly-swatters. The van Riemsdijk collection was celebrated in a special exhibition at Natural History Museum Rotterdam, The Netherlands, in 2015.

The collection and the collector are documented online.

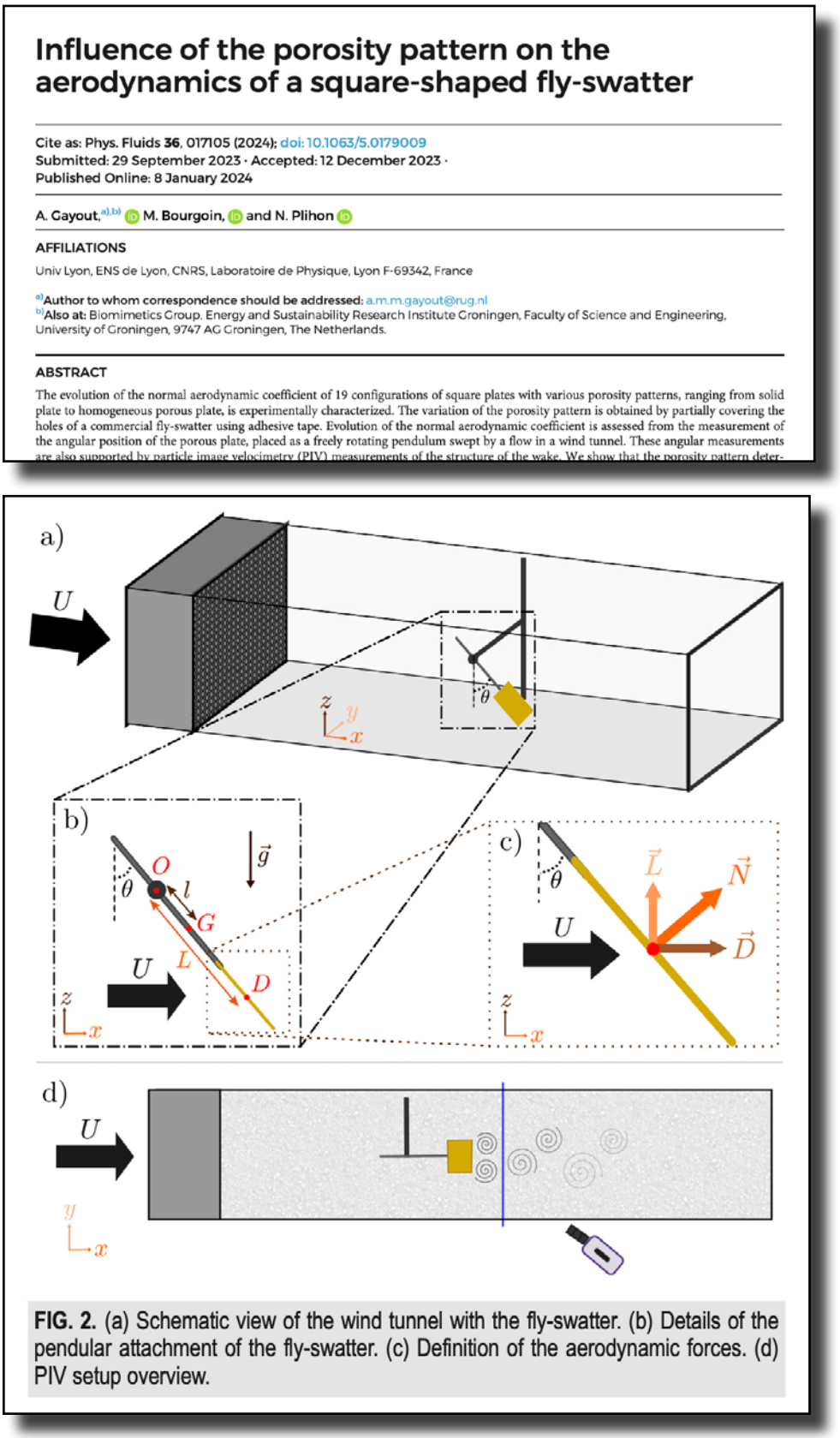
Fly-swatters in the 2015 Natural History Museum Rotterdam exhibition. Photo: Kees Moeliker.

Iza van Riemsdij, whose collection of fly-swatters was celebrated in a special exhibition at Natural History Museum Rotterdam.

Fly-Swatter Aerodynamics

"Influence of the Porosity Pattern on the Aerodynamics of a Square-Shaped Fly-Swatter," A. Gayout, M. Bourgoin, and N. Plihon, *Physics of Fluids*, vol. 36, 2024, article 017105. *(Thanks to Guillermo Amador for bringing this to our attention.)* The authors, at Université de Lyon, France, and the University of Groningen, The Netherlands, report:

> The evolution of the normal aerodynamic coefficient of 19 configurations of square plates with various porosity patterns, ranging from solid plate to homogeneous porous plate, is experimentally characterized.... Evolution of the normal aerodynamic coefficient is assessed from the measurement of the angular position of the porous plate, placed as a freely rotating pendulum swept by a flow in a wind tunnel. These angular measurements are also supported by particle image velocimetry (PIV) measurements of the structure of the wake. We show that the porosity pattern determines whether or not an abrupt stall occurs. In particular, the details of the porosity pattern on the edges of the plate are decisive for the existence of abrupt stall.



Influence of the porosity pattern on the aerodynamics of a square-shaped fly-swatter

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ABSTRACT

The evolution of the normal aerodynamic coefficient of 19 configurations of square plates with various porosity patterns, ranging from solid plate to homogeneous porous plate, is experimentally characterized. The variation of the porosity pattern is obtained by partially covering the holes of a commercial fly-swatter using adhesive tape. Evolution of the normal aerodynamic coefficient is assessed from the measurement of the angular position of the porous plate, placed as a freely rotating pendulum swept by a flow in a wind tunnel. These angular measurements are also supported by particle image velocimetry (PIV) measurements of the structure of the wake. We show that the porosity pattern deter-

FIG. 2. (a) Schematic view of the wind tunnel with the fly-swatter. (b) Details of the pendular attachment of the fly-swatter. (c) Definition of the aerodynamic forces. (d) PIV setup overview.

Detail from the study "Influence of the Porosity Pattern on the Aerodynamics of a Square-Shaped Fly-Swatter."

Fly-Swatters and Flies [cont'd]

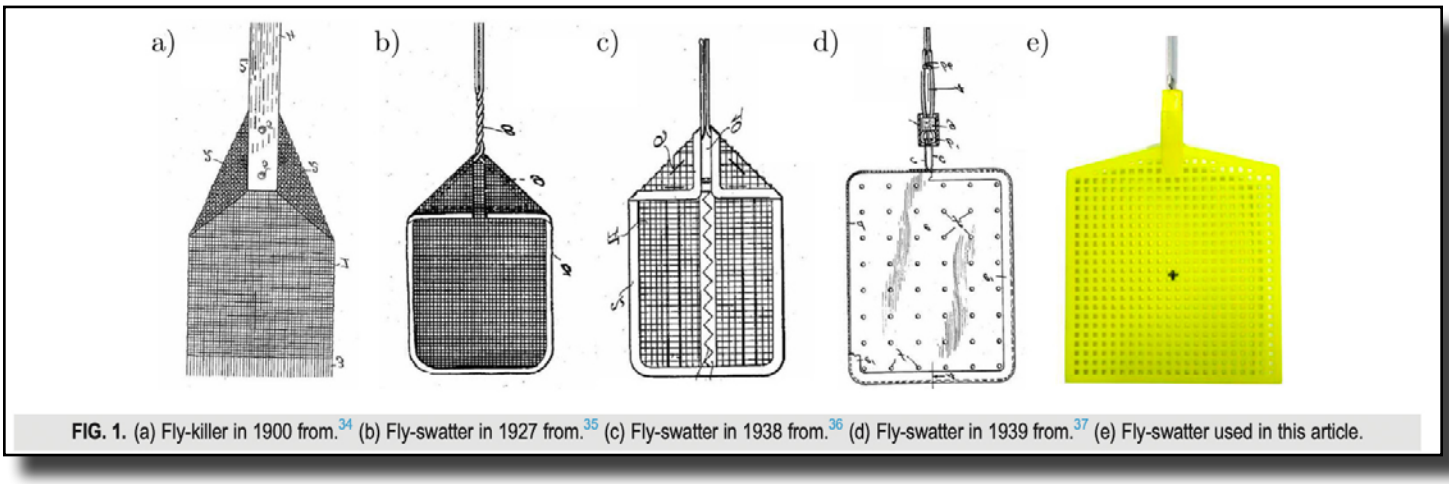

FIG. 1. (a) Fly-killer in 1900 from.[34] (b) Fly-swatter in 1927 from.[35] (c) Fly-swatter in 1938 from.[36] (d) Fly-swatter in 1939 from.[37] (e) Fly-swatter used in this article.

Further detail from the study "Influence of the Porosity Pattern on the Aerodynamics of a Square-Shaped Fly-Swatter."

Fly-Swatter Recommendation for 'One Punch Man'

"Using Japanese Animation for Fluid Mechanics Education: Examples From 'One Punch Man,'" Sangjin Ryu, ASME 2024 Fluids Engineering Division Summer Meeting collocated with the ASME 2024 Heat Transfer Summer Conference and the ASME 2024 18th International Conference on Energy Sustainability, July 15–17, 2024, Anaheim, California, USA, Paper No: FEDSM2024-131035, V001T03A014. The author, at University of Nebraska-Lincoln, reports:

> I present examples found in "One Punch Man." In this anime, Saitama is a superhero who can defeat any monsters and supervillains with a single punch. However, he cannot kill an irritating mosquito although he swats the insect with his hands. I use this scene as an example to explain the flow caused by a moving object due to the no-slip boundary condition and the stagnation point of the caused flow. Then, I recommend Saitama to use a fly swatter based on the aerodynamics of the fly swatter. The aerodynamics of the swatter head is related to the boundary layer and extended toward the olfactory antenna motion of lobsters.

Sangjin Ryu, author of the study "Using Japanese Animation for Fluid Mechanics Education: Examples From 'One Punch Man.'" Drawing by Nan Swift.

Swatted flies in the Natural History Museum Rotterdam exhibition. Photo: Kees Moeliker.