

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



Special Section: The 31st First Annual Ig Nobel Prizes

- 5 The 31st First Annual Ig Nobel Prize Ceremony*
- 10 The 2021 Ig Nobel Prize Winners*
- 17 A Grizzly (Bear) Note*
- 18 The Acceptance Speeches*
- 23 The 24/7 Lectures*
- 25 Opera Libretto: "A Bridge Between People"
- 31 Ig Nobel Limericks: Stinky Feet, Community Dad*
- 32 Ig® and Beyond: Speaking Up to Superiors, Dogs and Magnets*

Improbable Research Reviews*

- 3 Improbable Research: Bats, Rats, and Flies, Indoors
- 4 Medical: Deathly Kiss, Ritual Enema*
- 33 May We Recommend: Continuous Burning of Fake Feces*

News & Notes

- 2 AIR Vents: Dr. Ralph O. Clock's 12-Year Study*
- 15 Teacher's Guide
- 34 Editorial Board
- 34 Index of Special Issues
- IBC Unclassified Ads

Where There's More

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On the Front Cover

A composite photo of rhinoceroses being transported upside-down, suspended from a helicopter. The research that led to this was honored with the 2021 Ig Nobel Prize for Transportation.



On the Back Cover

The main exhibition hall at the Ig Nobel Prizes exhibition in Fukuoka, Japan, October 2021.



Some Coming Events

The Covid-19 pandemic has introduced excitingly boundless uncertainty as to whether, when, and where public activities will happen in the near future. In 2021 some will happen teledistantly.

See [IMPROBABLE.COM](https://www.improbable.com) for details of these and other events:

January 14, 2022—

Arisia, Boston, USA

January 20, 2022—

Improbable Conversation (premiere of a new series, online)

February, 2022—

AAAS Annual Meeting, Philadelphia, USA

March/April 2022

Ig Nobel Euro (and Britannia) Tour (if the pandemic allows)

September, 2022—

The 32nd First Annual Ig Nobel Prize Ceremony

Date TBA

Ig Nobel EuroTour



MAY WE RECOMMEND: CONTINUOUS BURNING OF FAKE FECES

An item that merits an extra look

by Stephen Drew, Improbable Research staff

"Continuous, Self-Sustaining Smouldering Destruction of Simulated Faeces," Ivo Fabris, Daniel Cormier, Jason I. Gerhard, Tomek Bartczak, Mark Kortschot, Jose L. Torero, and Yu-Ling Cheng, *Fuel*, vol. 190, 2017, pp. 58-66. The authors, at the University of Western Ontario, Canada; the University of Toronto, Canada; and the University of Queensland, Australia, report:

A new approach for the rapid destruction of human waste using smouldering combustion is presented. Recently, self-sustaining smouldering combustion was shown to destroy the organic component of simulated human solid waste and dog faeces resulting in the sanitization of all pathogens using a batch process. Here, a continuous smouldering process is demonstrated for the first time, allowing for a much smaller reactor size and much less energy input per mass of waste treated.

Continuous, self-sustaining smouldering destruction of simulated faeces

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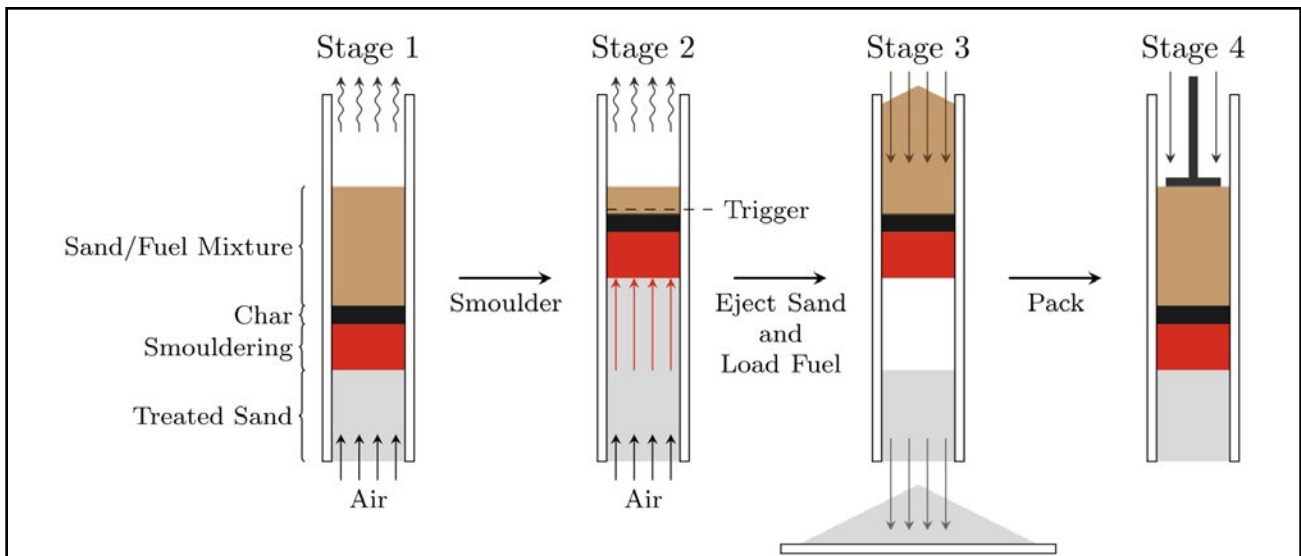
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ABSTRACT

A new approach for the rapid destruction of human waste using smouldering combustion is presented. Recently, self-sustaining smouldering combustion was shown to destroy the organic component of simulated human solid waste and dog faeces resulting in the sanitization of all pathogens using a batch process (Yermán et al., 2015). Here, a continuous smouldering process is demonstrated for the first time, allowing for a much smaller reactor size and much less energy input per mass of waste treated. The key process of intermittent self-sustained smouldering of simulated human faeces mixed with sand is evaluated (more than 16 h) based on a single ignition. The key process of intermittent self-sustained smouldering of simulated human faeces mixed with sand is evaluated (more than 16 h) based on a single ignition.



*Ivo Fabris, lead author of the study.
Drawing by Nan Swift.*



Detail from the study.