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**Dogs and the
Mona Lisa**

Why Engineers
Paint

**Grand Canyons
Everywhere**

ANNALS OF

**IMPROBABLE
RESEARCH**



Special **Painting** Issue!



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“When all other contingencies fail, whatever remains, however improbable, must be the truth.”—*Sherlock Holmes*
Science is the belief in the ignorance of experts.”—*Richard Feynman*

Introducing Our European Bureau Chief

We are pleased to announce (1) the appointment of C.W. (“Kees”) Moeliker as our European Bureau Chief, and (2) the opening of the Improbable Research European Bureau, which is located in C.W. Moeliker’s office at the Natuurhistorisch Museum Rotterdam.

Kees Moeliker is the curator of birds at the museum, and the world’s foremost authority on improbable behavior of, and/or research on birds. Moeliker rose to international prominence following publication of his study “The First Case of Homosexual Necrophilia in the Mallard *Anas platyrhynchos* (Aves: Anatidae)” (published in *Deinsea*, vol. 8, 2001, pp. 243-7). He was awarded the 2003 Ig Nobel Biology Prize, honoring that very research.

Subsequently, Moeliker joined the editorial board of the *Annals of Improbable Research*. He is a frequent author of articles in this magazine and on the web site, and has been a star participant in the Ig Nobel Tours of the U.K. and at the Ig Nobel Prize Ceremonies and Lectures.

Moeliker’s appointment, and the opening of the office, will be celebrated in May at a public ceremony at the museum. (If you would like to attend, see the Improbable Research web site for details.)

The north wing of the Natuurhistorisch Museum Rotterdam.

“A” marks the location of C.W. Moeliker’s office. This photograph is reproduced from his published report about the mallard duck incident.



Kees Moeliker displaying a stuffed mallard duck at the 2003 Ig Nobel Prize Ceremony. Photo: John Bradley.

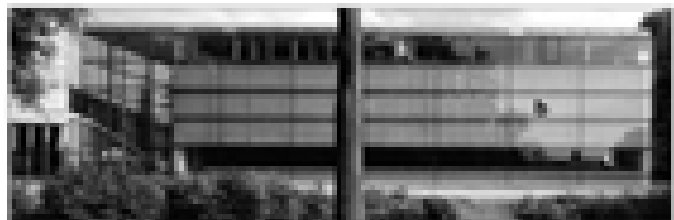


Figure 1. The new north wing of the Natuurhistorisch Museum Rotterdam: A = the office of the editor; B = the approximate location of the office of the author; C = the location of the author's office. The photograph is reproduced from the author's published report about the mallard duck incident. (Journal of Ornithology, 2001)

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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.



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A candid photo of Leonardo da Vinci's painting *Mona Lisa*. Photo: A.W. Kaswell, Improbable Research staff.

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Leonardo DaVinci's painting *Mona Lisa*, fitted with modern, color-changing contact lenses. Image: L. DaVinci and A.W. Kaswell, Improbable Research staff.

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- Ig Nobel U.K. Tour -- MARCH 2006
- Ig Nobel Netherlands Tour -- MAY 2006
- Ig Nobel Australia Tour -- AUG. 2006
- Alpbach Technology Forum, Austria -- AUG. 2006
- Ig Nobel Prize Ceremony -- OCT. 5, 2006
- Illinois - OCT 2006

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Every Weekday

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Annals of Improbable Research

The journal of record for inflated research and personalities
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AIR Vents

Exhalations from our readers

NOTE: The opinions expressed here represent the opinions of the authors and do not necessarily represent the opinions of those who hold other opinions.



Norquist Touts Magnet

I solved the mystery of the men and the magnet. Now you can stop running that same article over and over again. And you can finally lay aside those false claims you have published from Jos. Balsama, Robt. Schoolcraft, Robt. Mattson, Bel. Goldston, Dot. Bondelevich, Sus. Airoidi, Jms. Coffin and Ths. Maccarone. I recommend you publish no more letters from any of them.

The photograph shows my great-grandfather Robert Livengood and his fellow students at the Danville College physics department in Danville, Oregon on either May 12, 1916 or July 14, 1928, with a big electro-magnet. My father told me,

when I was a child, that he remembered seeing this photograph when he was a child. My great-grandfather is either the man on the extreme left or the man next to that man. They were conducting an experiment to see whether big electro-magnets attract objects made of iron. This was a famous incident in the history of the Danville College physics department, and it is

a shame that no one ever took photographs or made written accounts, at the time or later.

I am told that in a re-enactment of the experiment done in 1936 for the college's Re-enactment Day, they hooked up electricity to the electro-magnet, something that had not been possible in either 1916 or 1928.

My great-grandfather was not one of the men killed in the first experiment.

*Ronald Norquist
Norquist Pharmaceutical
Furniture Company
Zanesville Lower Falls, IL*

Anti-Violence Stance

In reference to Shuster and Shuster's article "Ice Skaters Have Small Breasts" (*AIR* 12-1), I can vouch for the small breasts after 34 years of ballet-dancing. The thing is,

you don't want large breasts - nothing distracts the audience from your temps-levé /jeté /assemblé combination like a pair of boobs flying around violently in all directions.

*Susan Welstead
Hamilton, ON, Canada*

Self-Help Reminiscence

Your "Know-Thine-Own-Self Survey" in recent issues of *mini-AIR* reminds me of the time that, as a journal editor, I processed a paper whose acknowledgements section thanked one of the authors for his help.

*Leslie Lamport
Microsoft Corporation
Mountain View, CA*

Allingham-Price, Again

Certain critics love to harp at my work. I do not mind your printing their letters, because sunshine is the remedy for many bad things. Ill-informed, jealous, petty, childish snarking at my work is one of those bad things. What I do mind is that you continue to reject the articles I submit to you. I have cloned dogs. Yet you have rejected my seven articles reporting how I did it. I have created a new class of chemicals that are able to remember things (such as other chemicals that come in contact with them), and also produce pictures of the chemicals and structures they come in contact with -- I call these "painter-enes," and the world would know about them if only you would publish my reports. Enclosed please find my new report about my discovery of giant amoebas -- the world's largest known by far, with diameters of three meters.

*Thomas D. Allingham-Price
Sheffield, U.K.*

Publisher Counts

on Readers

I was just browsing for mathematical books, and came across this: *Adding and Subtracting 6-8*, published by Autumn Publishing Ltd., Chichester, West Sussex, U.K., ISBN 1845310292, 33 pages long, published in 2004, price £2.99.

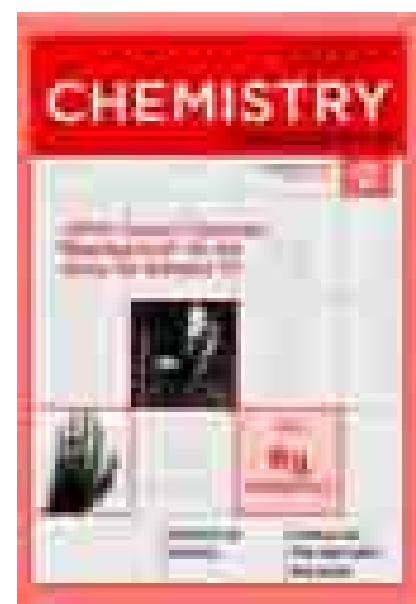
In time, no doubt, this will be an infinite series of books.

*Bob O'Hara
Department of Mathematics
and Statistics
University of Helsinki
Finland*

Seeing Through Mel

At long last, I've discovered who Mel is. *Chemistry International* journal was delivered to my office this month, and there on the cover was Mel. The person was of course disguised and was given an alias (Wilhelm Conrad Roentgen), but the resemblance cannot be denied. (I would entertain the possibility that "Willy" is Mel's brother, or even first cousin.) A copy of the cover of *Chemistry International* is attached.

*Victor S. Magar, P.E.
Chicago, IL*



Flying Mules

Congratulations on your unexpected answer to the long-held puzzle of the “flying mules of Grand Canyon.”

In your “Puzzling Solutions” section (*AIR* 11:5, page 14), the solution, “Tracy is on the 12th mule from the top” finally tells us what became of the flying-mules experiment.

For decades, the Fred Harvey Company conducted mule trips for the hardy and hearty at Grand Canyon. However, the trips on 12-mile-long Bright Angel Trail took too long. The company believed that if the mules could fly, faster trips and higher profits would be realized.

Your surprising photograph shows five strings of mules on the Devil’s Corkscrew section of Bright Angel Trail, near the bottom of the Grand Canyon. Each string carries a series of experimental airfoils. Unfortunately, it appears that the mules have stalled, lacking the speed to become airborne. This -- at last -- explains why the mules of Grand Canyon even today don’t fly.

*Earle E. Spamer
Asst. Reference Librarian
The American
Philosophical Society
Philadelphia, PA*

Avid Reader

Why don’t you print more letters from Ben Haller? I used to see him in your letters column on a regular



basis. Now letters from Mr. Haller appear rarely.

*Dr. Tamiko Oh
Yamagata, Japan*

Tough Standards

I read Freundlich’s analysis of Gluteal Hardness in Uniformed Security Guards (*AIR*, May-June 2005, p. 4) with great interest, as it has many practical applications in my work. However, I found one important detail to be missing: how was gluteal hardness actually measured? Is there an instrument or tool that can be brought to bear upon the glutei of a guard in order to procure such a measurement? I have a hunch that the closing photograph, in which a security guard is shown holding a dried bull penis, hints at the answer to this question, but a rigorous description of the procedure used would be most welcome.

*Ben Haller
Menlo Park, CA*

A Guide to the Stars

* Nobel Laureate
** world’s highest IQ
*** convicted felon
**** misspelled
***** sibling rivalry
***** six stars
***** Ig Nobel Winner

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John Van Maanan****, MIT Sloan School

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Al Teich, American Assn for the Advancement of Science

Stochastic Processes

(selected at random from amongst our subscribers)

William Tell, Silver Spring, MD

Women’s Health

Andrea Dunaif, Northwestern U.
JoAnn Manson, Brigham & Women’s Hosp.

Improbable Research Review

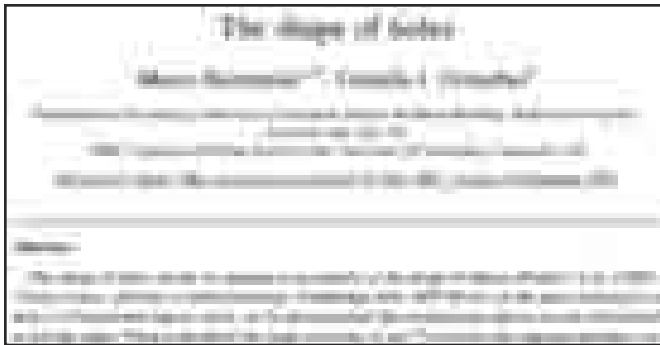
*Improbable theories, experiments, and
conclusions*

*compiled by Dirk Manley, Improbable
Research staff*



The Shape of Holes

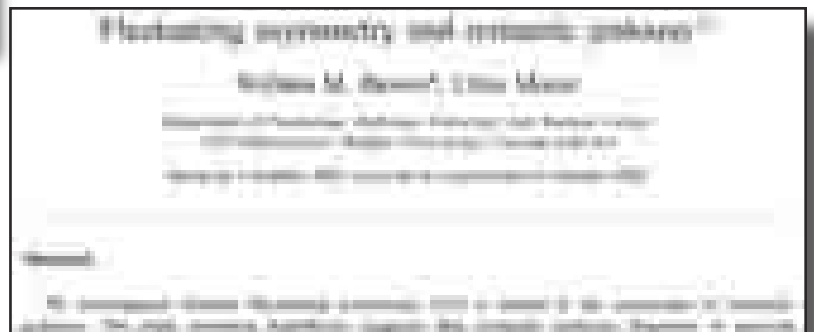
“The Shape of Holes,” Marco Bertamini and Camilla J. Croucher, *Cognition*, vol. 87, no. 1, February 2003, pp. 33-54. The authors, who are, respectively, at the University of Liverpool and the University of Cambridge, say that:



We discuss the many interesting aspects of holes as a subject of study in different disciplines and predict that much insight... will continue to come from holes.

Before the Flood (preliminary)

“PREFACE: Wetting: Introductory Note,” Stefan Herminghaus, *Journal of Physics: Condensed Matter*, vol. 17, no 9, 2005, pp. S261-4.



Hazards of Fluctuating Asymmetry (1)

“Fluctuating Asymmetry and Romantic Jealousy,” William M. Brown and Chris Moore, *Evolution and Human Behavior*, vol. 24, 2003, pp. 113-7. (Thanks to Stephen Goss for bringing this to our attention.)

Abstract

We investigated whether fluctuating asymmetry (FA) is related to the expression of romantic jealousy. The mate retention hypothesis suggests that romantic jealousy functions to prevent philandering, so one’s mate value, relative to rivals, may be a factor modulating jealousy. FA was used as a measure of mate value, and we found, as predicted, that asymmetrical individuals are significantly more jealous in mating contexts, but not in nonromantic contexts.

Hazards of Fluctuating Asymmetry (2)

“Fluctuating Asymmetry and Low Back Pain,” E. Al-Eisa, D. Egan and R. Wassersug, *Evolution and Human Behavior*, vol. 25, 2004, pp. 31-7.

Flight Response

“The Importance of Impulse Purchasing Behaviour in the International Airport Environment,” Gerry Crawford and T.C. Melewar, *Journal of Consumer Behaviour*, vol. 3, no. 1, September 2003, pp. 85-98.

We welcome your suggestions for this column. Please enclose the full citation (no abbreviations!) and, if possible, a copy of the paper.

Improbable Medical Review

Improbable diagnoses, techniques, and research

compiled by Bertha Vanatian, Improbable Research staff



Tight Ties, Pop Eyes

“Effect of a Tight Necktie on Intraocular Pressure,” C. Teng, et al., *British Journal of Ophthalmology*, vol. 87, no. 8, August 2003, pp. 946-8. (Thanks to Dany Adams for bringing this to our attention.) The authors summarize their work thusly:

Methods: 40 eyes of 20 normal subjects and 20 open angle glaucoma patients (all male) were enrolled. IOP [intraocular pressure] was measured with an open shirt collar, 3 minutes after placing a tight necktie, and 3 minutes after loosening it. All measurements were made by the same examiner.

Conclusion: A tight necktie increases IOP in both normal subjects and glaucoma patients and could affect the diagnosis and management of glaucoma.



Unsavoury Ties (1)

“Multicentre Randomised Double Bind Crossover Trial on Contamination of Conventional Ties and Bow Ties in Routine Obstetric and Gynaecological Practice,” M.M. Biljan, C.A. Hart, D. Sunderland, P.R. Manasse, and C.R. Kingsland, *British Medical Journal*, vol. 307, no. 6919, December 18-25, 1993, pp. 1582-4. (Thanks to Tim Churches for bringing this to our attention.) The authors, who are at University of Liverpool, U.K., explain that:

Although bow ties were significantly less contaminated at end of first working day ($z = -2.354$, $p = 0.019$), this difference was not maintained; there was no difference in level of contamination on third day.

Unsavoury Ties (2)

“Neck Ties as Vectors for Nosocomial Infection,” M. Dixon, *Intensive Care Medicine*, vol. 26, no. 2, February 2000, p. 250. (Thanks to Kurt Verkest for bringing this our attention.) The author warns that:

The results suggest that neck ties should be considered a significant potential source of infection. Although this risk can be lessened by wearing plastic aprons when we come into contact with patients maybe we should do without neck ties altogether in critical care areas.

In the Neck (of Time)

“A Model for Time-Dependent Flow in (Giraffe Jugular) Veins: Uniform Tube Properties,” B.S. Brook and T.J. Pedley, *Journal of Biomechanics*, vol. 35, no. 1, January 2002, pp. 95-107. (Thanks to Alan Litsky for bringing this to our attention.)

We welcome your suggestions for this column. Please enclose the full citation (no abbreviations!) and, if possible, a copy of the paper.



Canine Reactions to the *Mona Lisa*

by Catherine Maloney, Fairfield University, Fairfield, Connecticut, Sarah J. Lichtblau, University of Illinois, Champaign, Illinois, Nadya Karpook, University of Florida, Gainesville, Florida, Carolyn Chou, University of Pennsylvania, Philadelphia, Pennsylvania, and Anthony Arena-DeRosa, Harvard University, Cambridge, Massachusetts

We performed an experiment in which dogs were exposed to photographs of Leonardo DaVinci's painting the *Mona Lisa*.

This is a preliminary report. Further details will appear in a series of monographs and books.

Background to the Study

This builds on work we conducted more than a decade ago, which we reported in our study entitled "Feline Reactions to Bearded Men"¹ and then followed up in a series of other experiments, only some of which we have described in subsequent publications.

Our work was inspired in part by the work of Ciccone, Norquist and others, which we cite in our original publication. Norquist, with whom we are acquainted but not associated, has independently pursued a line of research involving one breed of cats.² Norquist's work has received public attention recently not because of his research per se, but because it was funded at levels unobtainable by most researchers.

Our Study

Our study involved 200 dogs. These were of several breeds: rat terrier, miniature dachshund, and mastiff, and mixes of the three.



The experiment was conducted over a period of eight months. During that time, each dog was exposed repeatedly to photographs of the painting.

The dogs viewed the photographs under two different experimental conditions: (A) in a well-lighted room; and (B) in total darkness. For the dark room portions of the experiment, we were able to infer the dogs' reactions by examining the condition of the photograph after the dog had reacted to it.

Our results can be summarized as follows: All dogs displayed a physical reaction to the photographs. The physical reactions can be categorized as follows: licking; or chewing; or both. The results were identical, as best we could tell, whether the room was lighted or entirely dark.

Conclusion

We conclude that dogs are not indifferent to photographs of the Mona Lisa.

References

1. "Feline Reactions to Bearded Men," Catherine Maloney, Sarah J. Lichtblau, Nadya Karpook, Carolyn Chou, and Anthony Arena-DeRosa, *Journal of Irreproducible Results*, vol. 36, no. 3, May/June 1991, pp. 16-8.

For a reprint see <http://www.improbable.com/airchives/classical/cat/cat.html>.

2. "Feline Reactions to Obese Cats," G. Norquist, *Annals of Improbable Research*, vol. 10, no. 7, 2004, pp. 42-9.



Mona Lisa: All Things to Some Researchers

How researchers see a much looked-upon lady

by Alice Shirrell Kaswell, *Improbable Research staff*

Leonardo da Vinci's painted portrait of the Mona Lisa entices researchers of many kinds to spring into action of some sort. Alerted to the possible presence of a newsworthy mystery, quite a few people want to define and then solve it.

On December 15, 2005, the painting popped up in the news in the company of scientists -- again. An Associated Press report explained that Harro Stokman, Nicu Sebe, and colleagues had gotten the Mona Lisa's number. They did so with precision, though with little claim to accuracy:

The mysterious half-smile that has intrigued viewers of the Mona Lisa for centuries isn't really that difficult to interpret, Dutch researchers said Thursday.

She was smiling because she was happy -- 83 percent happy, to be exact, according to scientists from the University of Amsterdam.

In what they viewed as a fun demonstration of technology rather than a serious experiment, the researchers scanned a reproduction of Leonardo da Vinci's masterpiece and subjected it to cutting-edge "emotion recognition" software, developed in collaboration with the University of Illinois.

The result showed the painting's famous subject was 83 percent happy, 9 percent disgusted, 6 percent fearful and 2

percent angry. She was less than 1 percent neutral, and not at all surprised.

The team has yet to publish a formal scientific report. If and when they do, it will join a growing heap of studies that are as difficult to categorize as the famous Mona Lisa smile. That smile, some scientists imply, may not really be a smile.

Here is a sampling of Mona Lisaeen studies.

Harro Stokman, part of the team that used computers to assign percentages to various aspects of the famous smile. Sketch by Nan Swift, *Improbable Research staff*.

Mona, Ailing (1)

Much of the world celebrates Mona Lisa as an iconic perfect woman. But Dr. Joseph E. Borkowski of the Georgetown University School of Dentistry in Washington, D.C., put forth a disturbing conjecture. In his study "Mona Lisa: The Enigma of the Smile" (*Journal of Forensic Sciences*, vol. 37, no. 6, pp. 1706-11), he explains that:

The Mona Lisa, painted by Leonardo da Vinci, 1503, pictures a smile that has been long the subject of conjecture. It is believed, however, that the Mona Lisa does not smile; she wears an expression common to people who have lost their front teeth. A close-up of the lip area shows a scar that is not unlike that left by the application of blunt force. The changes evident in the perioral area are such that occur when the anterior teeth are lost. The scar under the lower lip of the Mona Lisa is similar to that created, when, as a result of force, the incisal edges of the teeth have pierced the face with a penetrating wound.

(Thanks to Mark Benecke for bringing Dr. Borkowski to our attention.)

Mona, Ailing (2)

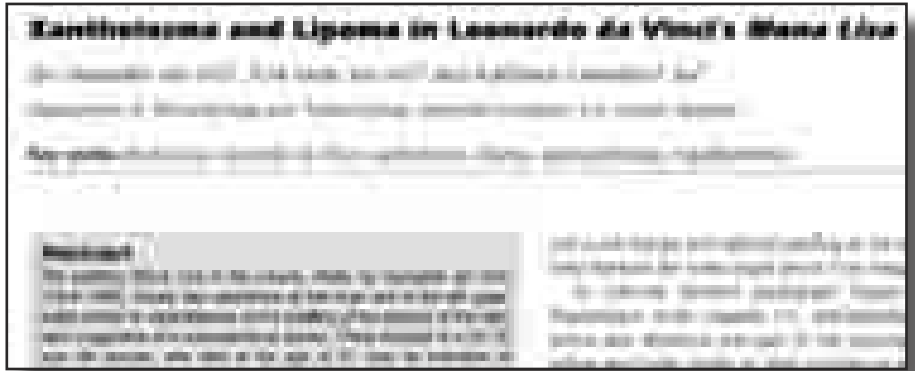
K.K. Adour, at the Kaiser Permanente Medical Center in Oakland, California, diagnoses a more debilitating ailment: Bell's palsy. Adour's study, "Mona Lisa Syndrome: Solving the Enigma of the Gioconda Smile" (*Annals of Otolaryngology, Rhinology, and Laryngology*, vol. 89, no. 3, March 1989, pp. 196-9) reports that:

The Mona Lisa smile is presented as a possible example of facial muscle contracture that develops after Bell's palsy when the facial nerve has undergone partial wallerian degeneration and has regenerated. The accompanying synkinesis would explain many of the known facts surrounding the painting and is a classic example of Leonardo da Vinci as the compulsive anatomist who combined art and science.

Mona, Ailing (3)

The truth may have been, or included, worse. J. Dequeker, E. Muls, and K. Leenders at the University Hospitals, Leuven, Belgium, say the lady was in deep trouble. Their report "Xanthelasma and Lipoma in Leonardo da Vinci's Mona Lisa" (*Israeli Medical Association Journal*, vol. 6, no. 8, August 2004, pp. 505-6) warned that:

The painting Mona Lisa in the Louvre, Paris, by Leonardo da Vinci (1503-1506), shows skin alterations at the inner end of the left upper eyelid similar to xanthelasma, and a swelling of the dorsum of the right hand suggestive of a subcutaneous lipoma. These findings in a 25-30 year old woman, who died at the age of 37, may be indicative of essential hyperlipidemia, a strong risk factor for ischemic heart disease in middle age. As far as is known, this portrait of Mona Lisa painted in 1506 is the first evidence that xanthelasma and lipoma were prevalent in the sixteenth century, long before the first description by Addison and Gall in 1851.



"Best of AIR" Book!

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The Best of Annals of Improbable Research, Marc Abrahams (ed.), W.H. Freeman

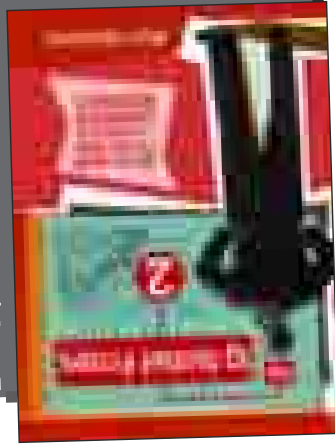
...And the book-length version of the famous AIR-birthed article: **A Brietfer History of Time**, by Eric Schulman, W. H. Freeman.

The Ig Nobel Prizes 2, by Marc Abrahams
Dutton Books, New York

Why Chickens Prefer Beautiful Humans, by Marc Abrahams, Orion Books, London

The Ig Nobel Prizes, by Marc Abrahams
Orion Books, London / Dutton Book, New York

And... editions in JAPANESE, POLISH, SPANISH, ITALIAN, CHINESE, DUTCH and other languages



Mona, Mentally

Psychiatrists, psychologists, and other mental specialists have tried to give the woman -- and the artist who painted her -- a good working over. Some go so far as to say that the woman is really a man, perhaps Leonardo's depiction of himself as a transvestite. But little or none of that particular line of reasoning has appeared prominently in the scholarly literature. Instead, one can find more staid analyses such as H.P. Blum's "Psychoanalysis and Art, Freud and Leonardo" (*Journal of the American Psychoanalytic Association*, vol. 49, no. 4, Fall 2001, pp. 1409-25). Blum dives deep into the psyche:

Freud was the first to apply psychoanalysis to art, choosing for his subject the life and work of Leonardo da Vinci. Observing Leonardo's partly fused image of the Virgin and St. Anne, he inferred that the artist had depicted his two mothers, his biological mother and his stepmother. This very early analytic discourse on parent loss and adoption changed the course of the interpretation of art. Freud explored the psychology of art, the artist, and aesthetic appreciation. Confronting the age-old enigma of the Mona Lisa, he proposed a daring solution to the riddle of the sphinx like smile of this icon of art. His paper prefigures concepts of narcissism, homosexuality, parenting, and sublimation. Lacking modern methodology and theory, Freud's pioneering insights overshadow his naive errors. In this fledgling inquiry, based on a childhood screen memory and limited knowledge of Leonardo's artistic and scientific contributions, Freud identified with this Renaissance genius in his own self-analytic and creative endeavor.

Durward J. Markle of Bellevue Psychiatric Hospital in New York City dives deeper still. His paper "Freud, Leonardo and the Lamb" (*Psychoanalytic Review*, vol. 57, no. 2, 1970, pp. 285-8) makes confident assertions:

In his study of Leonardo da Vinci, Freud states that the famous Mona Lisa smile is explainable in the light of Leonardo's mother-child relationship, and represents Leonardo's memory of the satisfaction he received as a child at his mother's breast and the love he found in her smiling gaze. Further he attributes the retained childhood feelings toward the mouth as also evident in other paintings, e.g., "The Holy Family." Freud's analysis is critically reviewed in light of Leonardo's childhood condition, with Leonardo being viewed as the child in "The Holy Family."

These are dark waters.

Some psychoanalytic researchers aim for a shallower dip into the mind of Leonardo. Wayne Anderson, Professor Emeritus of History, Theory, and Criticism of Art and Architecture at the Massachusetts Institute of Technology, published a journal article, and later a full book called "Freud, Leonardo da Vinci, and the Vulture's Tail: A Refreshing Look at Leonardo's Sexuality." The book was published by Other Press, in 2001. The article appeared in *Journal of the American Psychoanalytic Association*, vol. 50, no. 4, Fall 2002, pp. 1376-82.)

Attempting to rise far above surface level, Donald Capps, at the Princeton Theological Seminary, offers a study called "Leonardo's Mona Lisa: Iconic Center of Male Melancholic Religion" (*Pastoral Psychology*, vol. 53, no. 2, November 2004, pp. 107-37). Capps speaks boldly:

In the present essay, I argue that Leonardo da Vinci's Mona Lisa is the iconic center of the religion of male melancholia, and thus displaces the Virgin Mary of traditional Christianity in this regard. I provide evidence in support of this argument by focusing on Walter Pater's essay on Leonardo da Vinci, and interpreting Vincent Peruggia's theft, Hugo Villegas's stoning, and Marcel Duchamp and others' humorous assaults on the dignity of Mona Lisa as expressions of male melancholia. I conclude that the painting aids in the difficult task of transforming melancholia into mourning.

Physics and You, the Viewer

These matters may be only partially medical, mental, or mystical. Several scientists see the painting as an example of one or another pure physics effect. Others see the mysteries, if mysteries there be, as being largely about physiology -- the physiology of anyone who gazes at the painting.

Some reports take one or another ophthalmological approach. L.L. Kontsevich and C.W. Tyler of the Smith-Kettlewell Eye Research Institute in San Francisco, do just that in "What Makes Mona Lisa Smile?" (*Vision Research*, vol. 44, no. 13, 2004, pp. 1493-8.) They explain that:

To study the ability of humans to read subtle changes in facial expression, we applied reverse correlation technique to reveal visual features that mediate understanding of emotion expressed by the face. Surprising findings were that (1) the noise added to a test face image had profound effect on the facial expression and (2) in almost every instance the new expression was meaningful. To quantify the effect, we asked naive observers to



At the 2002 Ig Nobel Prize Ceremony, the simultaneous translators translate the proceedings into six languages, including baby talk. The translators all spoke at the same time, into the same single microphone. Photo: David Holzman.

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rank the face of Mona Lisa superimposed with noise, based on their perception of her emotional state along the sad/happy dimension. Typically, a hundred trials (with 10 or more samples for each rank category) were sufficient to reveal areas altering the facial expression, which is about two orders of magnitude less than in the other reverse correlation studies. Moreover, the perception of smiling in the eyes was solely attributable to a configurational effect projecting from the mouth region.

Margaret S. Livingstone of Harvard Medical School published a brief article called "Is it Warm? Is it Real? Or Just Low Spatial Frequency?" (*Science*, vol. 290, no. 5495, November 2000, p. 1299) . She writes that:

The spatial resolution of the human visual system changes dramatically with distance from the center of gaze (1), due to the fact that both the retina and the visual cortex devote disproportionately more neuronal machinery to the fovea....

[I]f you look at the painting so that your gaze falls on the background or on Mona Lisa's hands, your perception of her mouth would be dominated by low spatial frequencies, so it would appear much more cheerful than when you look directly at her mouth....

[H]er smile is more apparent in the low spatial frequency range, and therefore more apparent to peripheral vision than to central vision. Hence the elusive quality -- you can't catch her smile by looking at her mouth. She smiles until you look at her mouth, and then it fades, like a dim star that disappears when you look directly at it.

Mona, Sfumato

Diogo Queiros-Conde, a physicist at the Ecole des Mines de Paris, offers up both physics and a keen, discovering eye in his paper "The Turbulent Structure of Sfumato within Mona Lisa," published in MIT's journal called *Leonardo* (vol. 37, no.

3, June 2004, pp. 223-8.) The early pages bring to bear several kinds of knowledge:

The author describes a particular way of looking at the Mona Lisa whereby evidence of a turbulent structure (based on underlying sfumato) that reveals an infinity of hidden faces behind the famous figure can be seen. When light is progressively reduced by a "squinting process," the effect is especially striking in the last face on the edge of the painting's dark areas. The author interprets this visual phenomenon in the context of entropic skins geometry, which he has developed to describe the geometry and statistics of turbulent flows.



But Queiros-Conde's report includes, about two-thirds of the way through, a most curious passage, one likely to inspire visits to see the original painting for a good, careful look:

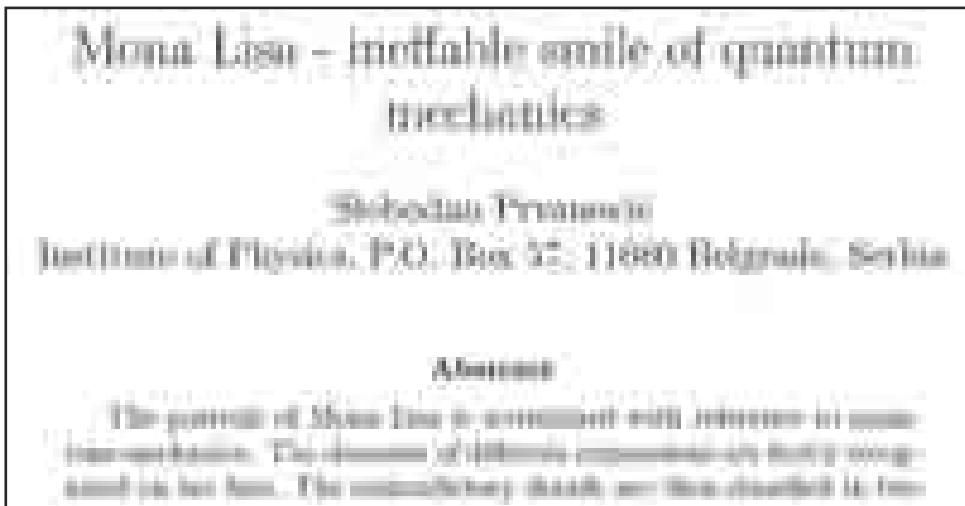
I advise the reader to pay attention to the luminous form just under Mona Lisa's left shoulder and to look at it (again, due to the Claparède effect, it helps to close one eye) from the upper right almost tangentially to the surface painting and from an angle corresponding to 45° in relation to the vertical. Redressed by this new angle of vision, one should recognize a form that can be interpreted as a human skull.

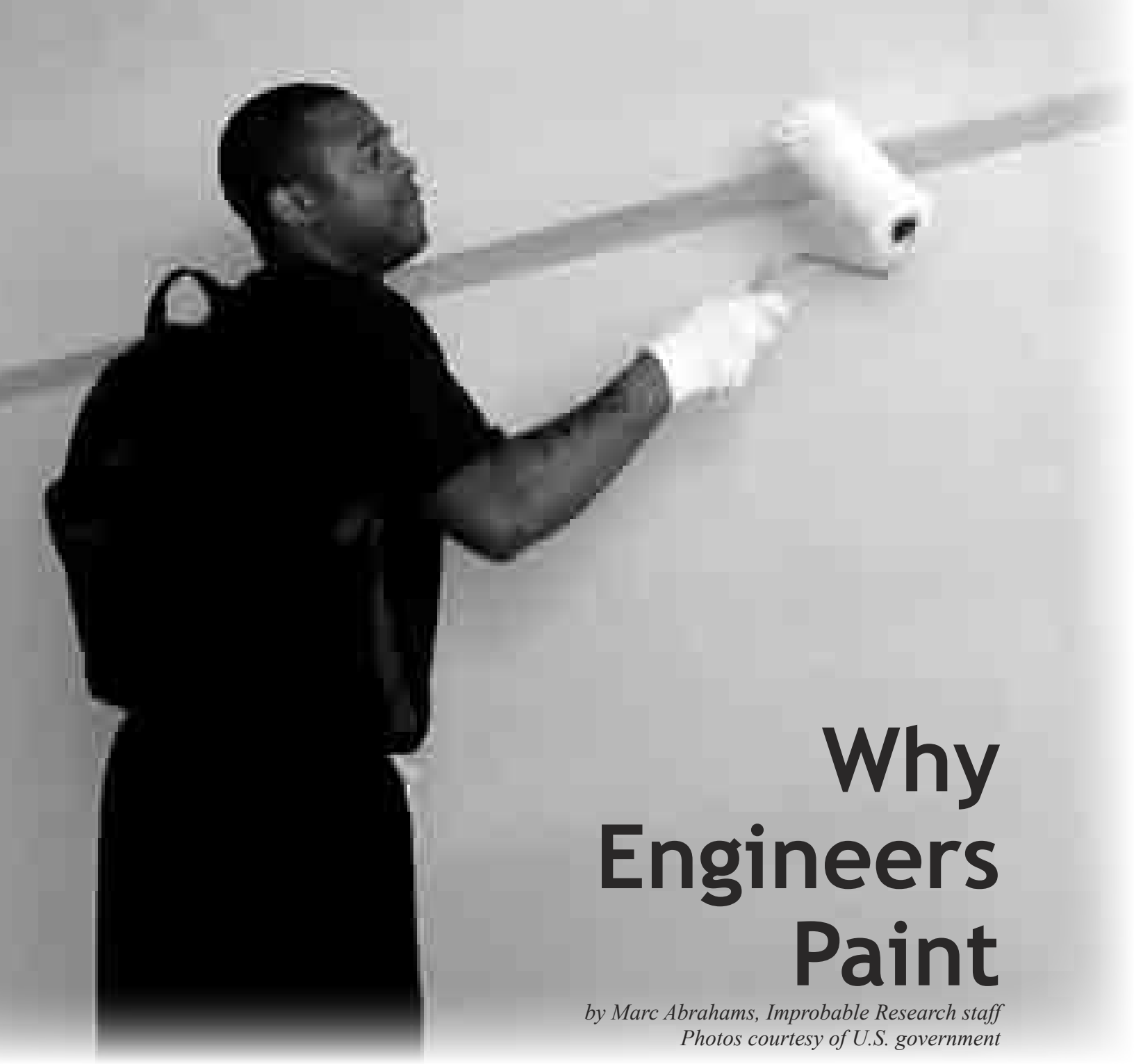
Mona and Quantum Mechanics

But for advanced physics, the field seems dominated by Slobodan Prvanovic of the Institute of Physics in Belgrade, Serbia. His recent study is so very advanced that it leaves many physicists perplexed. Here is the full citation, and a tantalizing excerpt:

"Mona Lisa -- Ineffable Smile of Quantum Mechanics," *arXiv:physics/0302089*, vol. 1, February 2003, Institute of Physics, P.O. Box 57, 11080 Belgrade, Serbia The author explains:

The portrait of Mona Lisa is scrutinized with reference to quantum mechanics. The elements of different expressions are firstly recognized on her face. The contradictory details are then classified in two pictures that, undoubtedly representing distinct moods, confirm dichotomous character of the original. Consecutive discussion has lead to conclusion that the mysterious state Mona Lisa is in actually is coherent mixture -- superposition, of cheerfulness and sadness.





Why Engineers Paint

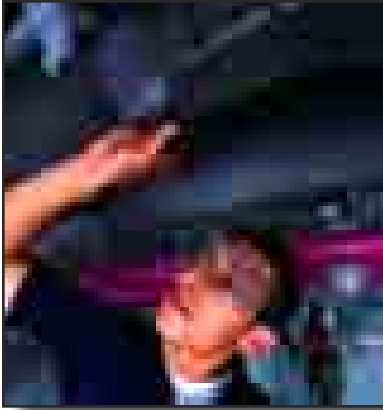
*by Marc Abrahams, Improbable Research staff
Photos courtesy of U.S. government*

A curious book explores why certain pet cats paint paintings. The book is called “Why Cats Paint” (Ten Speed Press, 1994, ISBN 0898156122). But there is an even more curious question, which deserves a book of its own: the question of Why Engineers Paint. Engineers, of course, do not paint paintings. They paint everything else.

A Question. An Answer.

Why do engineers paint? Engineers paint because there is paint on hand. Once purchased, the paint would go to waste if not used.

Purchasing agents understand this. It is no simple thing to purchase paint, not if the paint is to be purchased economically and in a timely fashion. And it is no easy thing to purchase paint in a timely fashion if the engineers who ordered the paint have not specified when they need it, or for what. Generally the order comes in written form, the engineers specifying in fastidious detail what kind of paint they need, and how much, and that they need it as soon as possible and in a particular quantity. Many a purchasing agent has been able, upon retiring at the age of sixty-five, to look back on a career filled with adventures



that sound like tall tales, each one beginning “Let me tell you about the time one of our engineers said, ‘I need some paint...’” Each of these stories is true, and can be backed up with manila folders full of documentation, should anyone

be daring enough to ask for proof that the paint was asked for, and ordered, and duly purchased and received and accounted for.

Why, then, do engineers paint? The experts say that you’d need to ask an engineer. Many purchasing agents have tried just that -- have asked an engineer, “Why do engineers paint?”

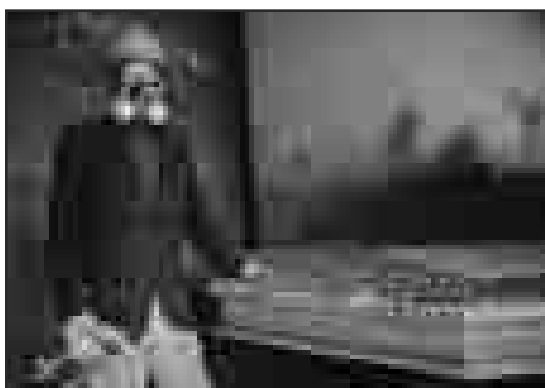
The question is a good one. Engineers agree that you cannot appreciate the answer unless you are, or have been, an engineer, or have lived or worked intimately with engineers on a day-by-day basis and seen the world as engineers see it. Why do engineers paint? The answer gets to the heart of what engineers think about when they think about what they do.





Engineers paint because there are buildings, and because those buildings need paint. Engineers paint because there are bridges, and those bridges need paint. Engineers paint because there are cars, and those cars need paint. Engineers paint because they are engineers, and their careful training has taught them that when you have ordered paint, or when you become aware that someone, it does not matter who, has ordered paint, and when the paint has been duly purchased and received and accounted for, then it would be a waste not to use the paint to paint something.

For these and other, similar reasons, engineers paint. And humanity is the better for it.



Boys Will Be Boys

Research by and for adolescent males of all ages and sexes

compiled by Katherine Lee, Improbable Research staff



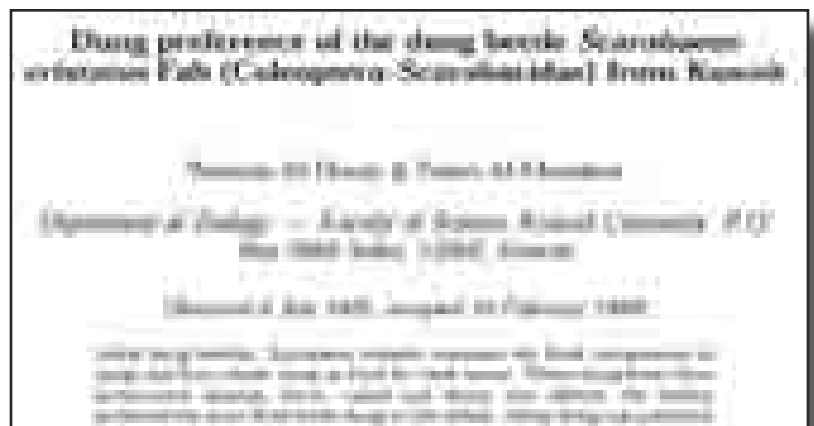
Big Shoes

“Orthopedic Shoes For Insemination Bulls,” [Article in German], M. Gunther and R. Kastner, *Monatsh Veterinarmed*, vol. 23, no. 4, February 1968, pp. 135-9. (Thanks to Reto Schneider for bringing this to our attention.)

Dung Preference Test

“Dung Preference of the Dung Beetle *Scarabaeus cristatus fab* (Coleoptera-Scarabaeidae) from Kuwait,” Wasmia Al-Houty and Faten Al-Musalam, *Journal of Arid Environments*, vol. 35, no. 3, 1997, pp. 511-6.

Adult dung beetles, *Scarabaeus cristatus*, consume the fluid components of dung and bury whole dung as food for their larvae. When dung from three herbivorous animals, horse, camel and sheep, was offered, the beetles preferred the more fluid horse dung to the others. Sheep dung was preferred to the camel dung. The dungs of two carnivores, dog and fox, were also accepted but to a lesser extent than the herbivore dung.



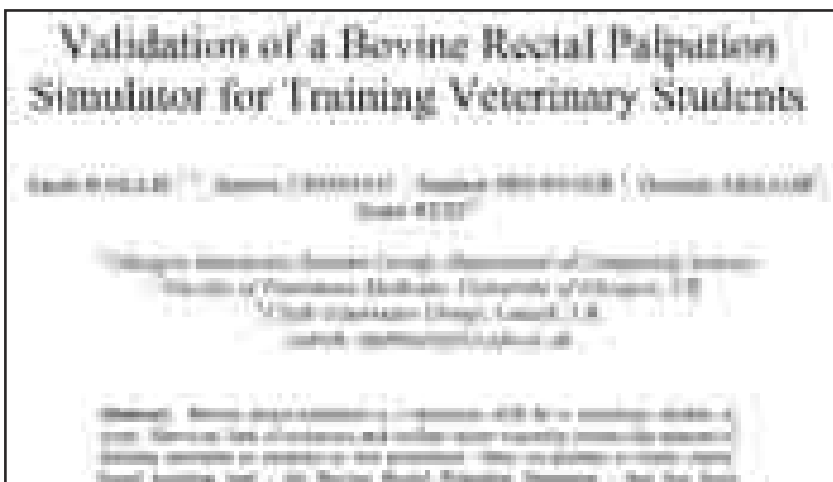
Flatulence

“Flatulence” [Article in Spanish], R. Leon Barua, *Revista de Gastroenterologia del Peru*, vol. 22, no. 3, July-September 2002, pp. 234-42. (Thanks to Barry Bogin for bringing this to our attention.) The author, who is at Universidad Peruana Cayetano Heredia, Lima, Peru, explains that:

At present physicians focus their medicine studies in well defined illnesses as peptic ulcer, gastric cancer, ulcerative colitis and so on. However, patients reveal their discomfort to us, that is their symptoms or group of symptoms (syndromes). For this reason, our concern for many years has been the study of symptoms and syndromes. In this review we will be looking at the concepts and information gathered with respect to intestinal gases, clinically known as flatulence.

The Haptic Cow Rectal Palpation Simulator

“Validation of a Bovine Rectal Palpation Simulator for Training Veterinary Students,” S. Baillie, A. Crossan, S.A. Brewster, D. Mellor, and S. Reid, *Proceedings of Medicine Meets Virtual Reality*, 2005. (Thanks to Mark Beard and numerous others for bringing this to our attention.)



Is the Grand Canyon a Fake?

by Earle E. Spamer
American Philosophical Society, Philadelphia,
Pennsylvania

[EDITOR'S NOTE: This is at least the third in Earle Spamer's series of deep explorations of the Grand Canyon.]

There are more than 400 physiographic "Grand Canyons" in the world. How can this be!? After all, the chasm in Arizona is *The* Grand Canyon. How did the many "other" Grand Canyons come about? Are any of them, in fact, provably grand?

Just as puzzling are hundreds of differing ideas of what can be compared to the Grand Canyon. Few of them have anything to do either with canyons or grandness. What in the world can (a) be *like* the Grand Canyon, and also, by being so described, can (b) *displace* the concept of the real thing?

There is a profound misinformational abyss. The real Grand Canyon may not be what (or where) we think it is.

Service With a Simile

In 1903, Theodore Roosevelt, greatest-grinned of U.S. Presidents, visited the Grand Canyon of the Colorado River, in Arizona. There he saw grandness for what it's worth, and he charged a cheering crowd to maintain the Grand Canyon "as it is . . . for your children's children." Now those grandchildren have aged -- like the canyon, whittled away by time. And the Grand Canyon still is not protected from the natural forces that wear it away.

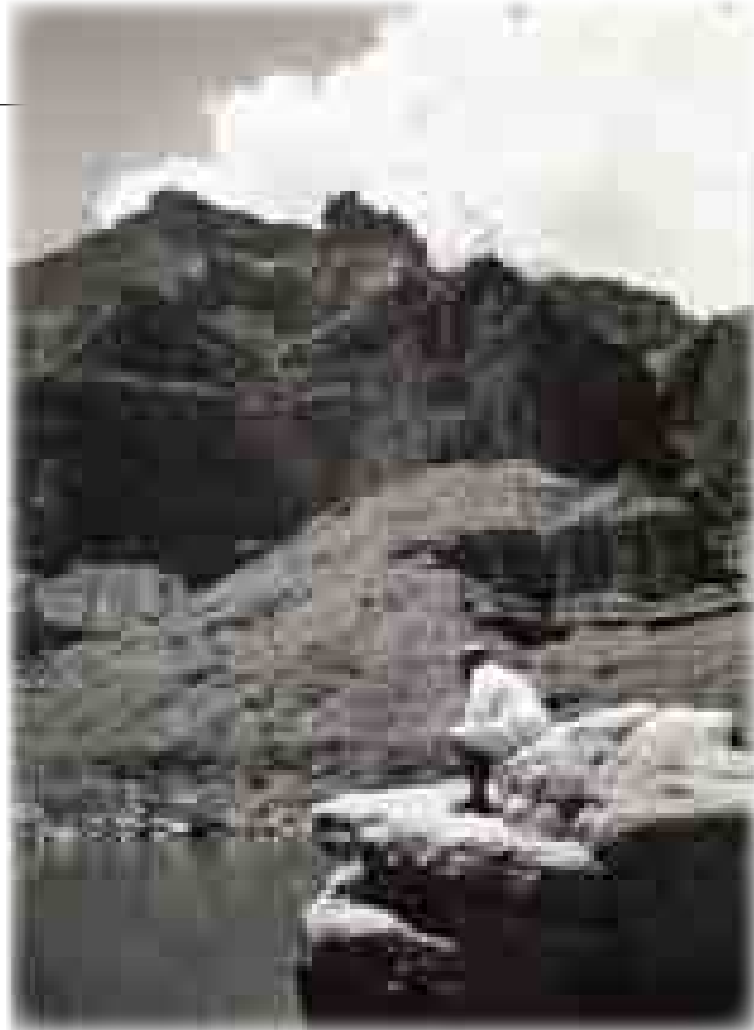
Heroic schemes have been proposed (mostly by me) to rescue the Grand Canyon, or at least to do something to slow the erosion that is destroying this magnificent hole -- for example, to aluminum-coat its walls,¹ or fill the chasm with styrofoam packaging piffles.² The piffle-packing procedure was openly considered in 1990s, documented both in this journal (the *Annals of Improbable Research*) and in *Nature Notes*, Grand Canyon National Park's activities and public outreach newsletter, with artistic renderings of the project. Yet, thus far, no suitably grandiose-scale preservation programs have been successfully implemented.

For generations people have believed that there is one -- only one -- Grand Canyon. With bare notice, though, the name was seized by unimaginative etymological pirates. First, it reappeared as the "Grand Canyon of the Yellowstone River," in Wyoming. Later, it scattered to locales around the globe, ranging from the "Grand Canyon of Alabama" to the "Grand Canyon of Zambia."

Now there are more than 400 "Grand Canyons" in the world. Some even claim the status of "grandier," while others are likened to "little" versions of the original, real thing. No effective means exist to distinguish contenders from pretenders.

The situation is even more deeply muddy than I have just described. Scattered through literature and spattered across the web there are the hundreds of examples of things that are claimed to be "like" the Grand Canyon, or are allusions to it. This must be a literary trait inherited from thousands of generations past; or why else would Olduvai Gorge be called the "Grand Canyon of evolution"?³

"California Condor compares the depth of the Grand Canyon against other canyons."



"The author ponders how to measure grandness at the bottom of Grand Canyon."





From the Earth to the Moon, Mars and Miranda

In America, 43 states have at least one Grand Canyon. Seventy-three nations boast a Grand Canyon or two. There are Grand Canyons in the bottoms of oceans, too. Nevertheless, only a small number of the world's Grand Canyons are recognized by agencies of geographic nomenclature, such as the U.S. Board of Geographic Names and the National Imagery and Mapping Agency. This still did not stop a few geographically challenged writers and bureaucrats from misplacing Arizona's canyon altogether, calling it the "Grand Canyon of New Mexico," "Nevada's Grand Canyon," and "Colorado's Grand Canyon." The Colorado transplant was sensationally replicated by the U.S. Postal Service in 1999 when they produced a full run of postage stamps portraying "Grand Canyon, Colorado." All 100 million stamps were then destroyed.

"Evolution of thought. Mules contemplate man's mismeasure of the grandness of Grand Canyon."

Some Grand Canyons are enthusiastically entitled only by agenda-driven organizations like chambers of commerce (e.g., "Pennsylvania's Grand

Canyon" along Pine Creek, promoted by the nearby town of Wellsboro) or contrived by roadside enterprises (e.g., Ausable Chasm, New York, the "Grand Canyon of the East," which is actually just one of seven places that each claim to be the Grand Canyon of the East). A few become popular and are elevated in status to state or regional parks (e.g., Providence State Park, "Georgia's Little Grand Canyon"; or the Navajo Nation's "Grand Canyon of the Little Colorado River Tribal Park," in Arizona). Some anthropogenic chasms are sold as slogans of commercialism (e.g., the "Grand Canyon of American Business," New York City's Broadway, which is not to be confused with nearby Madison Avenue, the "Grand Canyon of midtown business").

Most Grand Canyons are whimsically Grand, their Grandness spawned in the pens and keyboards of presumably professional writers. And for some, the sky is not the limit.

Two features on the moon are -- each -- called a "Grand Canyon." Mars' magnificent Valles Marineris is simultaneously called the "Grander Canyon," the "Grand Canyon of Mars," and the "Grand Canyon of the Solar System," perhaps in some astro-musical attempt to score the entire Grand Canyon Suite.

One diligent researcher has identified in a radar image from the Magellan Venus orbiter an artificially constructed bridge spanning a "Venus Grand Canyon." The planet Uranus boasts, or has had boasted on its behalf, a "grand canyon on the moon Miranda." Miranda does not have an erosion-sculpted canyon, but its fault-bound cliffs do soar to ten times the height of the walls of Arizona's water-engraved gorge.

Like It or Not

Beyond physiography, in the realm of analogy and metaphor, there's a veritable cement mixer of grand canyons. Some terms are merely strained, but most are so stunningly pointless that "metaphor" and "simile" are words too good to apply to them. For example, Carlsbad Caverns is likened to "a Grand Canyon with a roof over it." This is distinct from Skocjanske Jame, a cave in Slovenia said to be "a Grand Canyon under the earth." For some reason, the second and third decades of the 20th century are the "Grand Canyon of history." Radio bandwidth is a "national resource not unlike the Grand Canyon." And so on. Each is a "Grand Canyon of originality" (yet another, from *The New York Times*, no less).⁴

Certain people are compared to the Grand Canyon. As you might expect, they are commanding figures of grace. Joan of Arc is one. Another is Barry Goldwater. He was a one-time Presidential candidate and for years a U.S. Senator representing the state of Arizona, which just so happens to be home to the original Grand Canyon (or what's left of it).

There is a Finnish style of interior design called "Grand Canyon." Models of several kinds of commercial products are named "Grand Canyon." There



Theodore Roosevelt.



are Grand Canyon-style ceramic tiles, playground equipment, mattresses, motorcycles, and roofing shingles, among other things. “Grand Canyon Rust” is an appealing (to some, anyway) nail polish color. The U.S. Army Third Corps Artillery headquarters at Fort Hood, Texas, is trumpeted as being the “Grand Canyon of armor power.” Hell (not the town in Norway) is said to be a “Grand Canyon of fire.” And appropriately, the qualification exam given to prospective lawyers is the “Grand Canyon of torture.”

“The measure of absolute grandness. So grand is the Grand Canyon that overwhelmed tourists at El Tovar Hotel cannot walk the last 100 feet to the canyon rim.”

The great gorge of Arizona is itself the pinnacle of Grand Canyons. Conservationist John Muir called it “the grand canyon of canyons.” Regrettably reformulated by a lesser writer, it is also the “Grand Canyon of Grand Canyonness.” It’s enough to make an editor squeal.

The Zen of Canyonry

Imagine defining a canyon as an expanse of potholes. During World War II, builders of the Alaska-Canada Highway announced that they had found the “Grand Canyon of the Alcan.” It is a vast area of unstable permafrost depressions that complicated the task of roadway construction.

The streetscapes of large cities invoke comparison to the Grand Canyon. East Sixth Street is said to be the “Grand Canyon of Cleveland.”

Large open-pit mines include the “Man-Made Grand Canyon of the North,” which is evidently the pride of Hibbing, Minnesota, a town better known to some as the boyhood home of singer Bob Dylan.

Fantasy is sometimes indistinguishable from imagination. Why a shadow-shrouded waterfall in the Pocono Mountains of Pennsylvania -- or a circular lake in the American Midwest -- should be called a Grand Canyon is perplexing. Depth is not a criterion. The “Grand Canyon of Florida,” Fakahatchee Strand in the Everglades, is “unlike other canyons” in that its depth is just inches! But care must be taken not to confuse this with “Florida’s Famous Underwater Grand Canyon,” which is completely immersed at Weeki Wachee Springs, the so-called “City of Mermaids” destination for family entertainment since 1947.

Phantasieland in Bruehl, Germany, takes entertainment to a higher level with its “Grand Canyon” rollercoaster. And the Six Flags Over Texas theme park has “Wile E. Coyote’s Grand Canyon Blaster,” surely the acme of rollercoasters.

The human imagination works greater wonders yet. The course of the Colorado River after its Grand Canyon climax, where it flows through the open deserts toward its delta in Mexico, has been called the “Grand anti-Canyon of North America.” Its antithesis, appropriately located on the opposite side of the globe, is Uluru (Ayers Rock), in Australia’s Northern Territory, known to some as the “anti-Grand Canyon.”



“National Park Service crew works at ensuring the greater grandeur of the one true Grand Canyon.”

Gullible Travels

Many neologists go about their work honestly, calling their canyons the “Little Grand Canyon,” “Small Grand Canyon,” “Baby Grand Canyon,” or “Miniature Grand Canyon.” Implying equality at least, there is “The Other Grand Canyon,” which compares to Arizona’s canyon but clearly puts a limit (two) to the number of Grand Canyons in the world. Problematically, two canyons claim to be “The Other” Grand Canyon -- one sits in the Pacific Ocean off the California coast, the other is in Idaho.

In fact, the size of Arizona’s Grand Canyon was only an educated guess when the Smithsonian Institution first mentioned the place in 1857. It was called “Big Canyon” then. Only a few non-Native people had ever seen it, and their scant descriptions only bemoaned that it was a barrier to travel. That did not stop geologist Edward Hitchcock from guessing its depth. Explorers had already visited the Grand Falls along the Little Colorado River, which is a hundred miles from that river’s confluence with the Colorado River in the deep of Grand Canyon. Hitchcock noted the falls’ height of 120 feet, and opined that the depth of the Little Colorado’s nascent gorge there was “less probably than that of the Big Cañon.”⁶ As yet, even now, the Smithsonian has not addressed the discrepancy between this figure and the Grand Canyon’s true depth, which is more than one mile.

Canyonity is all about depth; the deeper the better. But surprisingly, a canyon’s “depth” has been redefined. It was and still is measured from top to bottom. However, canyons that have no rims per se (deep declivities in mountain ranges, for example) are measured relative to the tops of nearby mountain peaks. Even the National Geographic Society embraces this method of determining depth, and to this end the Society has identified and promoted the idea that there are “deeper” and “grander” canyons than Arizona’s famous chasm. This is geological nonsense.

The magnificent canyons of the American Southwest and comparable canyons in other parts of the world are there because powerfully flowing rivers cut -- deeply -- into and through plateaus. The putatively deeper and grander-than-Grand canyons have rivers that never were at the heights of neighboring mountaintops. This is a sensational redefinition of how depth is created. This is Grand redefinition done for the sake of jazzing up magazines and travel brochures. And, in fact, none of these chasms that are supposedly grander than Grand Canyon are in the United States. Other nations entice adventurers to distant lands and eagerly awaiting travel guides. They make no complaint about the diabolical detumescence of America’s

Grand Canyon. Perhaps, one might suggest, there is a conspiracy of nationalist geographic disinformation.



At Last: One True Grand Canyon?

Geysir in Haukadalur, Iceland, is the etymological source of all the world’s geysers. Capitalized, Geysir is a name protected by Iceland for use exclusively in reference to their most historical geyser. Should the United States follow Iceland’s example? Should there be American legislation to restrict the number of Grand Canyons, or to set the size of “true” Grand Canyons? As a separate question: should there be a Grand Canyon universal standard -- not kept in an airtight vault in Paris like the old meter and kilogram standards, but one defined by wavelengths and atomic oscillations?

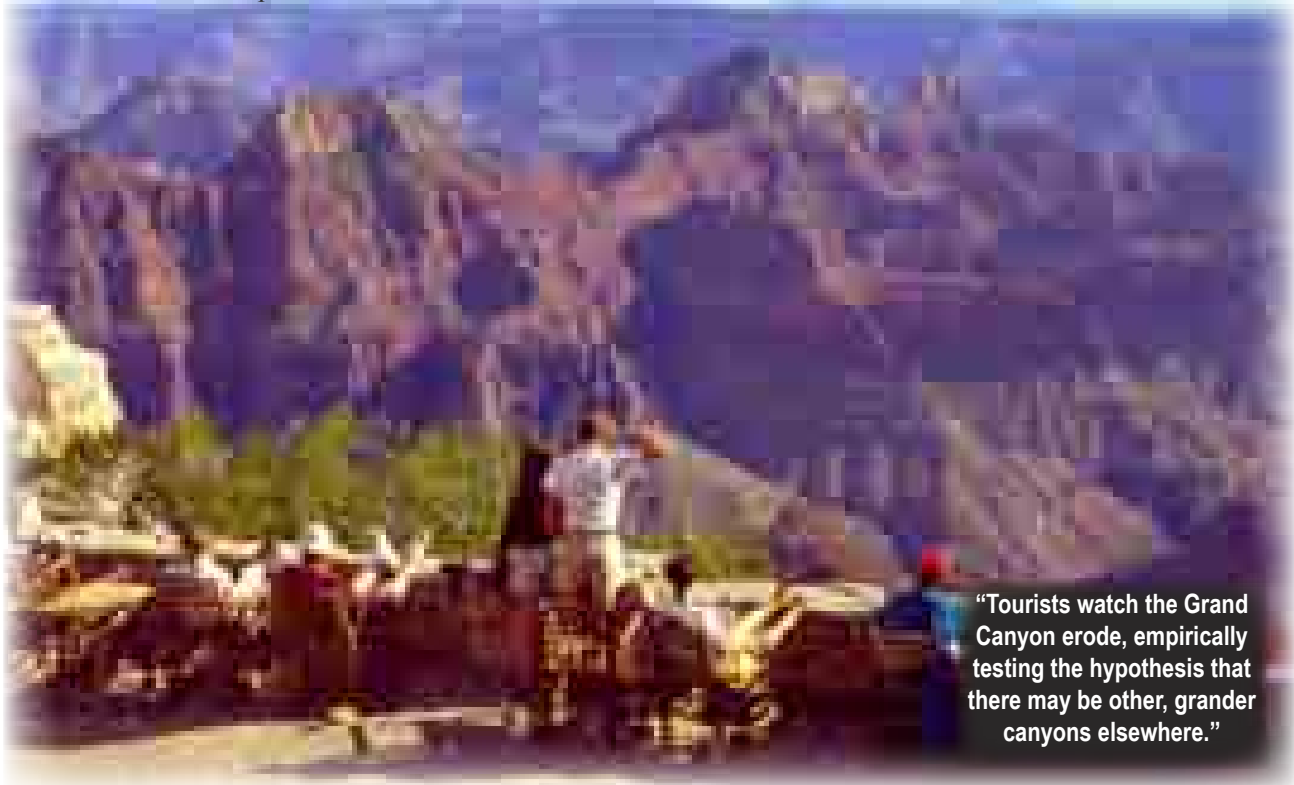
“Theatre in the ground. National Park Service ranger at Grand Canyon discusses perspective and erosion.”

Begin the campaign! Much as countries have protocols for succession in government, or complex genealogies of heraldry and peerage, there can and should be a hierarchy of canyons. It begins with the first, the true (or at least truest) Grand Canyon.

If you live in the U.S., do your part to bring this about. Write letters to newspaper editors, who always look for interesting opinions. Make your feelings known to your elected state and federal representatives, who are bound (by self-interest, if nothing else) to tackle these difficult issues on your behalf.⁷ Or write a letter to the President. He may believe that the Grand Canyon is in Palo Duro State Park, the “Grand Canyon of Texas,” but state your case if you disagree!

Notes

1. As implied in “Introducing Aluminum-LPCVP,” *Solid State Technology*, vol. 25, no. 5, May 1982, p. 7.
2. The proposal to fill the Grand Canyon with styrofoam packaging piffles was noted by E.E. Spamer, “Preserving the Grand Canyon: Final Report,” pp. 94-96 in *Sex as a Heap of Malfunctioning Rubble (and Further Improbabilities)*, Marc Abrahams, ed., Workman Publishing, New York, 1993. This was reprinted with new illustrations by Grand Canyon National Park in *Nature Notes*, vol. 12, no. 1, 1996. Follow-up research was presented in “The Grand Canyon -- Further Final Report, and Users’ Guide,” *Annals of Improbable Research*, vol. 3, no. 4, 1997.
3. It is impossible to cite here more than a few of the hundreds of sources that document these real and metaphorical “Grand Canyons.” This is an act of scholarly faith. Each example is in my files, which someday may be entombed in some hapless archive; watch for them.
4. “Jazz Ballet Program,” Clive Barnes, *The New York Times*, October 11, 1965, p. 54.
5. As read in a travel journal by “Lisa,” posted on the web at www.penguindust.com/lisa/journals/2002/020904.html [viewed by me on September 8, 2005].
6. “Illustrations of Surface Geology,” Edward Hitchcock, *Smithsonian Contributions to Knowledge*, vol. 9, 1857, p. 116. Actually, the height of Grand Falls is 185 feet, still less than the depth of the Grand Canyon.
7. Inasmuch as Arizona is already officially “The Grand Canyon State,” proof should be offered that the association is to the correct Grand Canyon. Arizona’s Governor and the Arizona Office of Tourism have taken steps. In May 2005, the state moved to (their quote) “reclaim the Grand Canyon” from the marketing moguls of Las Vegas, Nevada, who promote tours to the canyon as if it were a part of Nevada. An Arizona state tourism spokesperson defended the action by pointing out that “It’s on our license plates.”



“Tourists watch the Grand Canyon erode, empirically testing the hypothesis that there may be other, grander canyons elsewhere.”

May We Recommend

Items that merit a trip to the library

compiled by Stephen Drew, Improbable Research staff

Scaling Behavior in Shaving Cream

“Scaling Behavior in Shaving Cream,” D.J. Durian, D.A. Weitz and D.J. Pine, *Physical Review A*, vol. 44, no. 12, December 15, 1991, pp. R7902-R7905.

Singh, Singh, Singh: Of a Pulsing Hiss

“Observation of Pulsing Hiss at Low Latitudes,” R.P. Singh, R.P. Patel, Kalpana Singh and Ashok K. Singh, *Journal of Atmospheric and Solar-Terrestrial Physics*, vol. 67, no. 16, November 2005, pp. 1497-1503. (Thanks to Tom Gill for bringing this to our attention.)



Doggie Do: Doubles- Discriminating

“The Discrimination by the Nose of the Dog of Individual Human Odours and in Particular of the Odour of Twins,” H. Kalmur, *British Journal of Animal Behaviour*, vol. 3, 1955, pp. 25-31.

We welcome your suggestions for this column. Please enclose the full citation (no abbreviations!) and, if possible, a copy of the paper.

AIR Teachers' Guide

Three out of five teachers agree: curiosity is a dangerous thing, especially in students. If you are one of the other two teachers, *AIR* and *mini-AIR* can be powerful tools. Choose your favorite *hAIR*-raising article and give copies to your students. The approach is simple. The scientist thinks that he (or she, or whatever), of all people, has discovered something about how the universe behaves. So:

- Is this scientist right -- and what does “right” mean, anyway?
- Can you think of even one different explanation that works as well or better?
- Did the test really, really, truly, unquestionably, completely test what the author thought he was testing?
- Is the scientist ruthlessly honest with himself about how well his idea explains everything, or could he be suffering from wishful thinking?
- Some people might say this is foolish. Should you take their word for it?
- Other people might say this is absolutely correct and important. Should you take their word for it?

Kids are naturally good scientists. Help them stay that way.

Other Grand Canyons

Incarnations Around the World and on Other Worlds

by Earle E. Spamer

This is a list of geographical and artificial features named, in some or other fashion, “Grand Canyon.” It includes names formal and informal, current and archaic; some are off-the-cuff descriptive terms. Copies of references are in Spamer’s files. Anyone wishing further details can consult Spamer, who will consult his files if time and patience permit.

An early, much shorter, version of this list was published as “Doin’ the Canyon Shuffle,” by Early C. Corax and C. V. Abyssus (pseudonyms of Earle E. Spamer and Richard D. Quartaroli), in *Boatman’s Quarterly Review* (vol. 9, no. 3, Summer 1996, pp. 6-7). Some sources were originally taken from the U.S. Geological Survey’s Geographic Names Information System and from gazetteers published by the Defense Mapping Agency. Since 1996, the list has been greatly expanded, the additions coming from other published sources, from ephemera, and substantially from websites.

The earliest known use of the term “Grand Canyon” for a geographic feature was in 1846 by James William Abert, in the *Journal of Lieutenant J.W. Abert from Bent’s Fort to St. Louis, in 1845*: “At noon we reached the Grand Cañon, which is referred to by Gregg is his *Commerce of the Prairies*, as a source of great annoyance to early travelers.” (The Gregg mentioned here did not himself use the term.) This reference probably refers to what today is Mills Canyon, along the Canadian River in New Mexico.

As far as I am aware, the earliest appellation “Grand Canyon” in reference to Arizona’s Grand Canyon of the Colorado River appeared in 1859, a decade before John Wesley Powell solidly established the name as a part of American culture and science. In the February 1859 issue of the *Journal of the American Geographical and Statistical Society* (vol. 1, no. 2, pp. 41-5) there appeared a slightly abridged reprinting of Joseph C. Ives’ preliminary report of his 1857-8 exploration of the Colorado River. There the title and an introductory paragraph were apparently written by the editor of the journal, but who he was is not indicated in that issue, nor has his name been found in record searches. The name “Grand Canyon” appears to have been applied to the entire system of canyons in the lower Colorado River, between present-day Black Canyon and Grand Canyon, the region explored by Ives’ party; and thus, significantly, it embraces “Big Cañon” of Ives’ and other contemporary usage.

For an overview of these early uses of the term “Grand Canyon” and notes on the definition of the words “grand” and “canyon,” see Spamer, “The Canyon Grand by Any Other Name” in *Nature Notes* (Grand Canyon National Park), vol. 13, no. 1, Spring 1997, pp. 7-9.

Please note that this original, and some would say inspirational, compilation of bibliographical citations was, is, would, and will be solely the property of the compiler and editor, Earle E. (“Grand Canyon”) Spamer.

USA (contiguous 48 states)

(39 states here listed)

Alabama, Little River Canyon, Little River National Preserve / Grand Canyon of the South; Grand Canyon of the East; Little Grand Canyon; the Small Grand Canyon
Arizona, Antelope Canyon Wilderness / Little Grand Canyon
Arizona, Canyon de Chelly / Little Grand Canyon; Grand Canyon
Arizona, Chiricahua Mountains / Grand Canyon
Arizona, Colorado River / The Grand Canyon; Grand Canyon; America’s Grand Canyon; Grand Canyon of the U.S.A.; Grand Canyon of the Southwest; Grand Canyon of the Colorado Plateau; Grand Canyon of Grand Canyon; Grand Canyon of New Mexico [entry]; Nevada’s Grand Canyon [entry]; the wild Grand Canyon; Grand Canyon of the Lower Colorado River Basin; Grand Canyon of Grand Canyon National Park [sic]; Grand Canyon [sic]
Arizona, Hualapai Canyon, Mohave Spring / Grand Canyon
Arizona, Karchois Caverns / Grand Canyon
Arizona, Little Colorado River gorge / Grand Canyon of the Little Colorado; Ruby Grand Canyon; Little Grand Canyon
Arizona, Navajo Indian Reservation / Grand Canyon of the Little Colorado River Gorge Tribal Park
Arizona, Salt River Canyon / Little Grand Canyon
Arizona, Southern Bradshaw Mountains / Little Grand Canyon
Arizona, Spangarn Canyon Wilderness Area / Minuteman Grand Canyon; Arizona’s Little Grand Canyon
Arizona-California, Colorado River, Topock Gorge / The Baby Grand; Little Grand Canyon
Arizona-California-Mexico, Lower Colorado River region / Grand anti-Canyon of North America
Arkansas / Grand Canyon of the Ozarks
Arkansas, north of Jasper / Grand Canyon of Arkansas
California, Angeles National Forest / Grand Canyon
California, Butte County, Butte Creek Canyon / Little Grand Canyon; Butte County’s Little Grand Canyon
California, Feather River / Grand Canyon of the Feather River
California, Joshua Tree National Park / Grand Canyon [Joshua Forest]
California, Kern County, Bad Rock Canyon State Park / Little Grand Canyon of California
California, King’s River / Grand Canyon of King’s River; King’s River Grand Canyon
California, Los Angeles County, Santa Catalina Island / Grand Canyon
California, Marin County / Grand Canyon
California, Monterey Canyon [submarine] / Grand Canyon of Monterey Bay; The Other Grand Canyon; California’s Grand Canyon; Grand Canyon of California; Grand Canyon of the Sea; Grand Canyon of the Ocean; Grand Canyon of the Eastern Pacific
California, Mt. Lowe, San Gabriel Mountains, north of Pasadena / Grand Canyon
California, Mt. Tamalpais / Grand Canyon
California, Orange County, Lanesome Canyon / Grand Canyon of Orange County

California, Owens Valley, Owens Gorge / Grand Canyon of the Eastern Sierra
California, San Bernardino County, Alton Canyon / Grand Canyon of the Mojave Desert
California, San Diego County, Borrego Springs / Grand Canyon of Borrego
California, Sierra Mountains, San Joaquin River / Grand Canyon of the San Joaquin River
California, Truckee River, near Salmon Falls / Little Grand Canyon
California, Yosemite Valley / Grand Canyon of the Sierras
California, Tuolumne County, Tuolumne River / Grand Canyon of the Tuolumne; Grand Canyon of Yosemite
California, Ventura County / Grand Canyon of South Mountains; Fontaine County’s Grand Canyon
Colorado / Little Grand Canyon; “Colorado High Plains”
Colorado, “entrance to Estes Park” / Loveland Grand Canyon
Colorado, Arkansas River, Royal Gorge / Grand Canyon of the Arkansas; Grand Canyon of the Rockies; Colorado’s Grand Canyon
Colorado, Fort Carson, near Colorado Springs / Little Grand Canyon
Colorado, Glenwood Canyon / Little Grand Canyon of Colorado
Colorado, Gore Canyon / Grand Canyon of the Grand River
Colorado, Gunnison River / Grand Canyon of the Gunnison
Colorado, Platte River / Grand Canyon of the Platte
Florida, Kings Bay area / Grand Canyon Spring [submarine]
Florida, Sand Key Reef / Sand Key Grand Canyon [submarine]
Florida, “Wauki Wachee” [uncommenced] / Florida’s Famous Underwater Grand Canyon
Georgia, Providence Canyon State Park, Stewart County / Georgia’s Little Grand Canyon; Grand Canyon of Georgia; Georgia’s Grand Canyon; Little Grand Canyon of the South
Georgia, Toccoa County, Tallulah Gorge / Georgia’s Little Grand Canyon; Little Grand Canyon of the East
Idaho, Lost River Range / Minuteman Grand Canyon
Idaho, Owyhee River / The Other Grand Canyon
Illinois, Jackson County / Little Grand Canyon
Kansas, Arkansas Brinks / Grand Canyon of the High Plains; Mini-Grand Canyon of the Midwest
Kentucky / Grand Canyon of the Southeast
Kentucky, Floyd Collins’ Crystal Cave / Grand Canyon
Kentucky, Red River Gorge, Daniel Boone National Forest / Grand Canyon of Kentucky
Kentucky-Tennessee, Big South Fork National River and Recreation
Arca, Big South Fork of the Cumberland River / Little Grand Canyon of the East
Kentucky-Virginia, Brads Interstate Park / Grand Canyon of the South; Grand Canyon of the Southwest; South’s Grand Canyon

Louisiana, Kiamichi Hills Wilderness, Kiamichi National Forest / Little Grand Canyon
Maine, Gulf Hagen, Pleasant River / Grand Canyon of Maine; Grand Canyon of the East; Mini Grand Canyon; New England’s Grand Canyon
Massachusetts, Chocomafield, Chocomafield Gorge, East Branch of / Grand Canyon of Western Massachusetts
Westfield River
Maryland, Shipps Creek, Northwest Branch / Grand Canyon of the Northwest Branch
Michigan, Barry County, near Hastings / Little Grand Canyon
Michigan, New Shelby Township, Shalabush Nature Center River
Brands Park / Grand Canyon of Michigan County
Michigan, Sturgeon River Gorge, Canyon Falls / Grand Canyon of Michigan; Grand Canyon of the Upper Peninsula
Minnesota, St. Louis County / Grand Canyons of the North
Minnesota, Stigeborg Reservation Area, Stigeborg River / Little Grand Canyon of the Stigeborg River; Little Grand Canyon
Minnesota, Temperance River / Grand Canyon of the Midwest
Mississippi, Mississippi Petrified Forest [near Jackson] / Grand Canyon of Mississippi
Mississippi, Pearl River, Bad Bluff / Mississippi’s Little Grand Canyon
Missouri, Marvel Cave / Grand Canyon
Missouri, Millstream Gardens Conservation Area, St. Francis River / Grand Canyon of Missouri
Missouri, northwestern [date not specified] / Little Grand Canyon
Missouri, Pioneer Forest, Grand Gulf State Park / Missouri’s Little Grand Canyon; Charles’ Grand Canyon; Little Grand Canyon of the Ozarks
Missouri, Warren County / Grand Canyon
Nevada, Hibernia National Forest, Frenchman River, north of Washoe / Little Grand Canyon
Nevada, Pinnacles, Cathedral Gorge State Park / Nevada’s Grand Canyon
Nevada, Elko / Grand Canyon’s little brother
New Hampshire, White Mountains, Franconia Notch / Little Grand Canyon
New Mexico, Canadian River / Grand Canyon
New Mexico, Luchapilla Cave / Grand Canyon of the Underworld
New York, Ausable Chasm / Grand Canyon of the East
New York, Catskill Mountains, Plunkitts Cove / Grand Canyon
New York, Edgewood-on-the-Catskills, Stony Clove / Grand Canyon
New York, Genesee River, Letchworth State Park / Grand Canyon of the East; Little Grand Canyon of the East; Grand Canyon of the Northeast; Grand Canyon of the Eastern U.S.A.; Grand Canyon of New York
New York, Long Island, Cornneck Peninsula / Long Island’s Grand Canyon; Cornneck Peninsula
New York, Ulster County, Englemann, Sam’s Point Preserve,

Ellerlie Ice Caves / Grand Canyon
North Carolina, Lenoir River, Lenoir Gorge / Grand Canyon of North Carolina, Grand Canyon of Western North Carolina, Grand Canyon of the East, Grand Canyon of the Southern Appalachians
North Dakota, Theodore Roosevelt National Park / Grand Canyon of the Little Missouri
North Dakota, Painted Canyon / Grand Canyon of North Dakota
Ohio, Clinton Gorge State Natural Preserve / Ohio's Grand Canyon
Ohio, East Continental Rift Basin [geologically subsurface] / Grand Canyon of Ohio
Ohio, Seven Caves / Grand Canyon of Ohio
Ohio, Zane Shawnee Cavern, near Bellefontaine / Little Grand Canyon
Oregon, Elsie River / Grand Canyon of the Elsie
Oregon, Hells Canyon (also Wyoming) / Grand Canyon of the Snake River, Grand Canyon of the Northwest
Oregon, John Day River / Grand Canyon of Oregon
Oregon, Mount St. Helens / Little Grand Canyon, Little Grand Canyon of the Tualle River
Oregon, Owyhee River / Grand Canyon of Oregon
Pennsylvania, Buckkill Falls / Grand Canyon
Pennsylvania, near Marsh Creek, Lehigh River / Grand Canyon of the Lehigh
Pennsylvania, Pocono Mountains / Grand Canyon of the Poconos
Pennsylvania, Topo County, Pine Creek State Park / Grand Canyon of Pennsylvania, Pennsylvania's Grand Canyon, Little Grand Canyon
Rhode Island, Raytheon Co., Lorton's Valley Canyon / Grand Canyon of Rhode Island
South Dakota, Grand Canyon of the South Dakota Badlands
South Dakota, Elk Creek Canyon / South Dakota's Grand Canyon
Tennessee, Tennessee River Gorge / Grand Canyon of the Tennessee [River], Grand Canyon of Tennessee
Tennessee, Wolf River / Grand Canyon
Texas, Big Bend National Park, Rio Grande [U.S.-Mexico] / Grand Canyon of Texas, Grand Canyon of Santa Helena, Grand Canyon of the Rio Grande
Texas, Palo Duro Canyon State Park / Grand Canyon of Texas, Grand Canyon of the Panhandle, Little Grand Canyon
Texas, Pecos River / Grand Canyon of the Pecos
Utah / Grand Canyons of the Colorado
Utah, Canyonlands National Park / Utah's Grand Canyon
Utah, Cedar Breaks National Monument / Little Grand Canyon
Utah, Emery County, Westwater Canyon, Colorado River / Little Grand Canyon
Utah, San Rafael River Gorge / Little Grand Canyon
Vermont, Ottaquashier River, Ottaquash Gorge / Grand Canyon of Vermont, Vermont's Little Grand Canyon, the small Grand Canyon of Vermont
Virginia, Dan River / Grand Canyon of Virginia
Virginia, Bassett Fork of Big Sandy River / Grand Canyon of the South
Virginia [reference to southwestern portion of state] / Grand Canyon of the South
Washington / Grand Canyon of Filham Mills Creek
Washington, Clifton Canyon / Grand Canyon
Washington, Goldendale, Elson Ranch / Little Grand Canyon
Washington, Nisqually River / Grand Canyon of the Nisqually
Washington, Walla Walla County, near Lewiston / Little Grand Canyon
West Virginia, Blackwater Canyon / Grand Canyon of West Virginia, Grand Canyon of the East
West Virginia, New River, New River Gorge National River / Grand Canyon of the East, Grand Canyon of the Eastern U.S., Grand Canyon of the New River
West Virginia, Schooneboom Cave / Grand Canyon
Wisconsin, Devils Lake State Park / Grand Canyon of the Midwest
Wisconsin, Wisconsin Dells / Little Grand Canyon of the Midwest
Wyoming [locale not specified] / Grand Canyon of Wyoming
Wyoming, Crook County-South Dakota, Lawrence County / Grand Canyon
Wyoming, Lincoln County / Grand Canyon
Wyoming, Yellowstone National Park / Grand Canyon of the Yellowstone, Grand Canyon of the Yellowstone River, Grand Canyon of Wyoming, Little Grand Canyon

NORTH AMERICAN LOCALITIES (other than USA contiguous 48 states)

Alaska, Alek River / Grand Canyon of the North
Alaska, Misty Fjords National Monument / Grand Canyon of Alaska
Alaska, Mt. McKinley, Kachikina Glacier / Grand Canyon of Alaska
Alaska, Nantah National Preserve, Nantah River / Grand Canyon of the Nantah
Alaska, Northwest Arctic County / Grand Canyon
Bahamas, Eleuthera, Evans Sound [submarine] / Grand Canyon of the Sea
Canada, Alberta, Alberta Bad Lands / Grand Canyon of Canada
Canada, British Columbia, Fraser River / Grand Canyon, Grand Canyon of the Upper Fraser River
Canada, British Columbia, Liard River Catcher Provincial Park / Grand Canyon of the Liard
Canada, British Columbia, Netchako Canyon, Netchako River / Grand Canyon of the Netchako, Grand Canyon
Canada, British Columbia, Sklawa River / Grand Canyon of the Sklawa, Grand Canyon of British Columbia, Grand Canyon of Canada
Canada, Ontario [locale not specified] / Grand Canyon of Ontario
Canada, Ontario, Grand River, Elora Gorge / Grand Canyon of Ontario, Grand Canyon of the Grand River
Canada, Nova Scotia, Sable Island, The Gully [Sable Gully, administrative] / Canada's underwater Grand Canyon, Grand Canyon of the Sea
Canada, Northwest, Somerset Island, Cunningham River / Grand Canyon of the High Arctic
Canada, Quebec [locale not specified] / Grand Canyon of Quebec
Canada, Quebec, Sainte-Anne River / Grand Canyon of Sainte Anne Falls
Canada, Yukon, Yukon River / Grand Canyon of the Yukon, Grand Canyon
Canada, Yukon-Northwest Territories, Nahanni River, Nahanni / Grand Canyon of the North, Canada's Grand Canyon, Grand National Park / Canyons of the Nahanni River
Cuba, south of Cayo Grande [submarine] / Grand Canyon
Greenland [locale not specified] / Greenland's Grand Canyon
Gulf of Mexico, Sigsbee Deep [submarine] (the Grand Canyon under the sea)
Mexico, Baja California, Colorado Island / Arroyo Gran Cañon
Mexico, Baja California, Isla San Juan / Little Grand Canyon
Mexico, Baja California, Tijuana / Gran Cañon
Mexico, Barranca del Cuervo / Mexico's Grand Canyon, Grand Canyon of Mexico, the Grand Canyon
Mexico, Chapala / Grande cañon del Rio La Venta
Mexico, Mazatlan, Los Cuervos / Grand Canyon of Cuervos
Mexico, Rio Uruapanita, San Jose Canyon / Grand Canyon of San Jose
Mexico, Santiago, Bolsonso River / Gran Cañon de Bolson
Mexico, Yucatan, Cozumel, Palancar Reef / Grand Canyon of the Caribbean

LOCALITIES OUTSIDE NORTH AMERICA

Central America
Guatemala, Rio Dulce, El Gallo / Grand Canyon of Guatemala
Guatemala, San Jose Canyon / Grand Canyon of San Jose
Nicaragua, Mucru, Cañon de Somoto / Gran Cañon, Gran Cañon de Somoto
South America

Argentina, Parque Nacional de Iguazú / Gran Cañon de Iguazú
Argentina, Provincia del Chubut / Gran Cañon del Rio Chubut
Brazil [locale not specified] / Grand Canyon of Brazil
Brazil, Chapala dos Guimarães / Little Grand Canyon
Chile, Rio Itou / Grand Canyon of Chile
Colombia, Cañon de Chicoracho / Grand Canyon of Colombia
Ecuador, Rio Quijos / Grand Canyon of the Quijos
Ecuador, Rio Yacachi Canyon / Grand Canyon of Ecuador
Peru / Grand Canyon of the Colca River
Venezuela, Isla de Coche, Playa El Cero / Gran Cañon en Pequeño
Atlantic Islands
Bermuda / Grand Canyon Cave
Iceland, Jökullgjálf National Park / Grand Canyon of Iceland
Iceland, Thjóðskóli Valley, Gfira Canyon / Grand Canyon of Iceland
Europe
Austria, Ockergraben / Austrian Grand Canyon, Grand Canyon of Lower Austria
England, Cañon of Mendips Hill, near Cheddar, Somerset / Grand Canyon of England
England, Chalk Gorge, Somerset / England's Grand Canyon
Estonia, Hiiumaa / Hiiumaa Grand Canyon
Finland, Gorge of Kevijoki / Grand Canyon of Finland
France, Isère, Gouffre Berger [cave] / Grand Canyon
France, Provence, Gorge du Vidoué / Grand Canyon de Provence, Grand Canyon of Europe, Grand Canyon of France, France's Own Grand Canyon, Grand Canyon of the Alps
France, Tarn River / Little Grand Canyon of France
Germany, Black Forest [locale not specified] / Grand Canyon of Germany
Greece, Levron / Grand Canyon
Greece, Vikos Gorge / Grand Canyon of Greece
Iceland, Mosa Head, Cliffs of Múfir / Grand Canyon of Iceland
Maldiva (Circum Patimula) / Grand Canyon
Norway, Aurlandsfjell / Norway's Grand Canyon
Norway, Fjaldgjøll / Grand Canyon of Norway
Spain [locale not specified] / Little Grand Canyon
Spain, Pyrenees, Odeira / Gran Cañon, Grand Canyon of Europe
Spain, La Garganta del Chorro [Gorge of Las Cañones] / Grand Canyon of Spain
Spain, Rio Llobregat / Grand Canyon of Spain
Spain-Portugal, Iberian Grand Canyon, Rio Duero / Gran Cañon Ibérico
Switzerland [locale not specified] / Grand Canyon of Switzerland
Switzerland, Grindelwald / Grand Canyon of the Alps
Switzerland [locale not specified] / Swiss Grand Canyon
Switzerland, Rhone Gorge / Little Grand Canyon
United Kingdom, West Sussex, near East Grinstead, High Rocks / Grand Canyon [fishing site]
Asia (including the Mid-Eastern Region)
India, Zaskar River / Grand Canyon of Asia, Grand Canyon of India, Asia's Grand Canyon
Japan, Kurotsune, Sotokyo Gorge / Grand Canyon of Kyushu
Kazakhstan / Grand Canyon of Kazakhstan, Grand Canyon of Atyraut, Atyrau Grand Canyon
Kazakhstan, Charyn Canyon / Little Grand Canyon
Korea [see South Korea]
Malaya [locale not specified] / Grand Canyon of Malaya [probably anthropogenic]
Malaysia, Sabah, Bintaia Valley / Grand Canyon of Sabah
Mongolia / Grand Canyon of Tugan Nur Basin
Nepal / Kali Gangaik Grand Canyon
Pakistan, Ishkhanj, Khorlan Mountains / Grand Canyon of South
People's Republic of China / China's Grand Canyon
People's Republic of China / Grand Canyon Tiger Leaping Gorge, between Dali and Lijiang
People's Republic of China, Jingpo County / Lijiang Grand Canyon
People's Republic of China, Yunnan Province, Nu River / Oriental Grand Canyon
People's Republic of China, Yunnan Province, Ningbo River / Oriental Grand Canyon, Myanmar's Grand Canyon
People's Republic of China, Three Gorges of the Yangtze / Grand Canyons of China
People's Republic of China, Xihou Suanzi, Mt. Huangshan / Grand Canyon of the West Sea, Xihou Grand Canyon
People's Republic of China, Zhejiang (eastern) / Little Grand Canyon
People's Republic of China, Zhejiang (western) / Grand Canyon of Western Zhejiang
Philippines [locale not specified] / Grand Canyon of the Philippines
Philippines, Laguna / Grand Canyon of Laguna
South Korea, Gangneung Province, Hamgang River / Grand Canyon of Korea
South Korea, Taebaek, Shampo-o-Dogpo-sop, Min Falls / Grand Canyon of Korea
Si Lanka, Obiya / Grand Canyon of Sri Lanka
Sumatra / Grand Canyon Cave
Taiwan, Hualien, Taroko Gorge / Grand Canyon of Taiwan, Grand Canyon of Asia
Thailand, Luephai Province, Patani River / Grand Canyon [premise]
Thailand, Ohang Gorge / Grand Canyon of Thailand
Thailand, Pae Muang Pae / Little Grand Canyon
Tibet, Yarkong Zangbo / Tibet's Grand Canyon
Turkey, Gush River Valley / Grand Canyon of Turkey
Turkey, Bihra Valley / Grand Canyon of Turkey
Mid-Eastern Region
Israel [locale not specified] / Grand Canyon of Israel
Israel, Negev, Malhash-Ramon crater / Grand Canyon of Israel
Jordan, Wadi Mujib / Jordan's Grand Canyon
Lithuan, Quailshia Valley / Grand Canyon of Lithuania
Spain / Grand Canyon of the System Desert
Yemen, Soqatra [Island] / Grand Canyon
Africa
Egypt [locale not specified] / Egyptian Grand Canyon
Egypt, Wadi Degla / Egypt's own miniature Grand Canyon
Egypt, Western Desert, Dakhkh Oasis, Wadi El-Tari / [?]'s Grand Canyon
Ethiopia, Blue Nile / Grand Canyon of Africa, Grand Canyon of the Nile
Guinea (West Africa), near Dendi / Grand Canyon of Guinea
Kenya, Hell's Gate National Park, Hell's Gate Gorge / Grand Canyon of Kenya
Madagascar, "unique range", near Mampija / mini-micro Grand Canyon
Madagascar, Isalo National Park / Grand Canyon of Madagascar
Mauritania / Grand Canyon Mauritania [submarine]
Mauritius, south coast [also site named "Coleridge"] / Africa Grand Canyon of the Sea [submarine]
Morocco, Todra Gorge / Grand Canyon of Africa

Morocco, Ziz Valley / Grand Canyon of Morocco
Namibia, Fish River Canyon / Grand Canyon of Africa, Grand Canyon of Southern Africa, Namibia's Grand Canyon
Oman, Wadi Nakhr / Grand Canyon of Arab States, Grand Canyon, Little Grand Canyon
South Africa, Blyde River Canyon / Grand Canyon of South Africa, Gran Cañon del Blyde River
South Africa, Drakensberg / Grand Canyon of South Africa
South Africa, Hlotse Valley, Fish River Canyon / Grand Canyon of South Africa
South Africa, Kanan Nature Reserve, Valley of Desolation / Grand Canyon of South Africa
South Africa, Orange River, Augrabies Falls National Park / Grand Canyon of South Africa
South Africa, Northern Province, Swartkops Valley / Grand Canyon Cave and Grand Canyon Rockshelter, Grand Canyon System
Tanzania [locale not specified] / Grand Canyon of Tanzania
Tanzania / Grand Canyon of the Atlas
United Arab Emirates, Hajar Mountains / Grand Canyon
Australia and New Zealand
Australia, Apenn Rock [?/here] / anti-Grand Canyon
Australia, Mount Victoria / Grand Canyon
Australia, Murray Canyon [submarine] / Australia's Grand Canyon
Australia, New South Wales, Blackheath, Blue Mountains / Grand Canyon of Australia, Grand Canyon of the Blue Mountains, Grand Canyon
Australia, Northern Territory, King's Canyon / Grand Canyon's little brother, Grand Canyon of Oz
Australia, Queensland, Pongara Gorge National Park / Little Grand Canyon
Australia, Victoria, Halls Gap / Grand Canyon
New Zealand, North Island, Mangonui Valley, Pakarua Station / Grand Canyon Cave
New Zealand, South Island [locale not specified] / Grand Canyon of the Southern Hemisphere
New Zealand, South Island, Buller Gorge / Grand Canyon of New Zealand, Little Grand Canyon
Antarctica
Antarctica, near McMurdo Sound / Antarctic Grand Canyon
Pacific Islands
Fiji / Grand Canyon [submarine]
Fiji, Bu River / Grand Canyon
Fiji, Navua Gorge / Fiji's Grand Canyon
Hawaii, Waianai Canyon, Keolu / Grand Canyon of the Pacific, Hawaiian Grand Canyon, Grand Canyon of Hawaii, Grand Canyon of the Hawaiian Islands, Miniature Grand Canyon of Hawaii, Grand Canyon of the South Pacific [sic], Miniature Grand Canyon of the South Pacific [sic]
Tahiti, Moorea, the Children / Grand Canyon of Tahiti

OTHER WORLD LOCALITIES

Atlantic Ocean, Hudson Canyon [submarine] / The Hudson's Grand Canyon, New York's Own Grand Canyon Under the Sea
Atlantic Ocean, Mid-Atlantic Ridge, Cornet Gorge [submarine] / Grand Canyon of the North Atlantic
Oceanic trenches [submarine] / Grand Canyon of the Seabed
Pacific Ocean, Mariana Trench [submarine] / Grand Canyon of the Sea

EXTRATERRESTRIAL LOCALITIES

Mars, Canaleo Chasma / Grand Canyon of Mars
Mars, Latao Vallis / Grand Canyon of Mars
Mars, Valles Marineris / Grand Canyon of Mars, Grand Canyon of Mars, Martian Grand Canyon, Grand Canyon of the Solar System, the Grand Canyon
Mars [locale not specified] / Martian Grand Canyon
Moon, Alpine Valley / Lunar Grand Canyon
Moon, Hadley Rille / Grand Canyon of the Moon

ARTIFICIAL ATTRACTIONS

East Beijing Grand Canyon / People's Republic of China, Hainan Reserve
Grand Canyon Bridge / Arizona, Nevada Bridge
Florida's Fernand Underwater Grand Canyon / ("Wish Washes"), Florida, commercial development of natural feature)
Grand Canyon / roller coaster, Linn Park, Coney Island, New York
Grand Canyon / shopping mall, Haifa, Israel
Grand Canyon / Mikki Karpen, on a ski run on Pobocze, near Maribor, Slovenia
Grand Canyon / water flume amusement ride, Dream World, Thailand
Grand Canyon, Grand Canyon Boller / roller coaster, Pottersdam, Breck, Germany
Grand Canyon Bridge / Arizona, Nevada Bridge
Grand Canyon Bridge / Vermont, Lamoille County, Canyon Road, Beweaver River, near Jeffersonville, Great Mill Bridge
Grand Canyon Buller / Reno Hilton, Reno, Nevada
Grand Canyon Canal Company / Idaho [belonging to the Carey Act of 1894]
Grand Canyon in Avonville / (Ohio, Avonville [to be here only])
Grand Canyon Limited / Arizona, Sipeka and Santa Fe Railroad [train name]
Grand Canyon of American Business, Grand Canyon of New York / Broadway, New York City, New York
Grand Canyon of chachua / Cathedral of Begovs, Spain [also metaphorical]
Grand Canyon of Cleveland, Ohio / Cleveland, Ohio, streetcar
Grand Canyon of Queen's New York, Grand Canyon of Manhattan Island
Grand Canyon of New York, Grand Canyon / Grand Canyon of the East / New York City, New York, amusement
Grand Canyon of midtown business / Madison Avenue, New York City, New York
Grand Canyon of New Rochelle / Joyce Beverages, New Rochelle, New York
Grand Canyon of Norway, Norwegian Grand Canyon / Norway, Sykkaberg mine
Grand Canyon of the Canal / Panama, Colaba, Cal, Panama Canal
Grand Canyon of the Meadows / Minnesota, Meadows Iron Range [strip mine]
Grand Canyon Ranch / South of Hines County, Switzerland
Grand Canyon Rapids / water flume amusement ride, Spain, United Kingdom, and Las Vegas, Nevada
Little Grand Canyon / Florida, Interoceanic Waterway, between West Bay and Chocomaehue Bay
Little Grand Canyon, Little Grand Canyon of Truchter / Oregon, Walla Walla County, Burlington Ditch [canal]
Man-Made Grand Canyon of the North, Minnesota's Grand Canyon / Minnesota, Hibbing, Hill-Rose Run
Reno Grand Canyon / ReTRAC, (Reno Railroad Tunnel) Project
Wile E. Coyote's Grand Canyon Buster / roller coaster, Six Flags Over Texas

Florida

Grand Canyon Research Review

Some scholarly reports from, of, or mentioning the canyon

compiled by Alice Shirrell Kaswell, Improbable Research staff

A Muchness

“Too Much: The Grand Canyon(s),” Lucy R. Lippard, *Harvard Design Magazine*, no. 10, Winter/Spring 2000, pp. 1-6. The author explains that:

There are too many Grand Canyons.

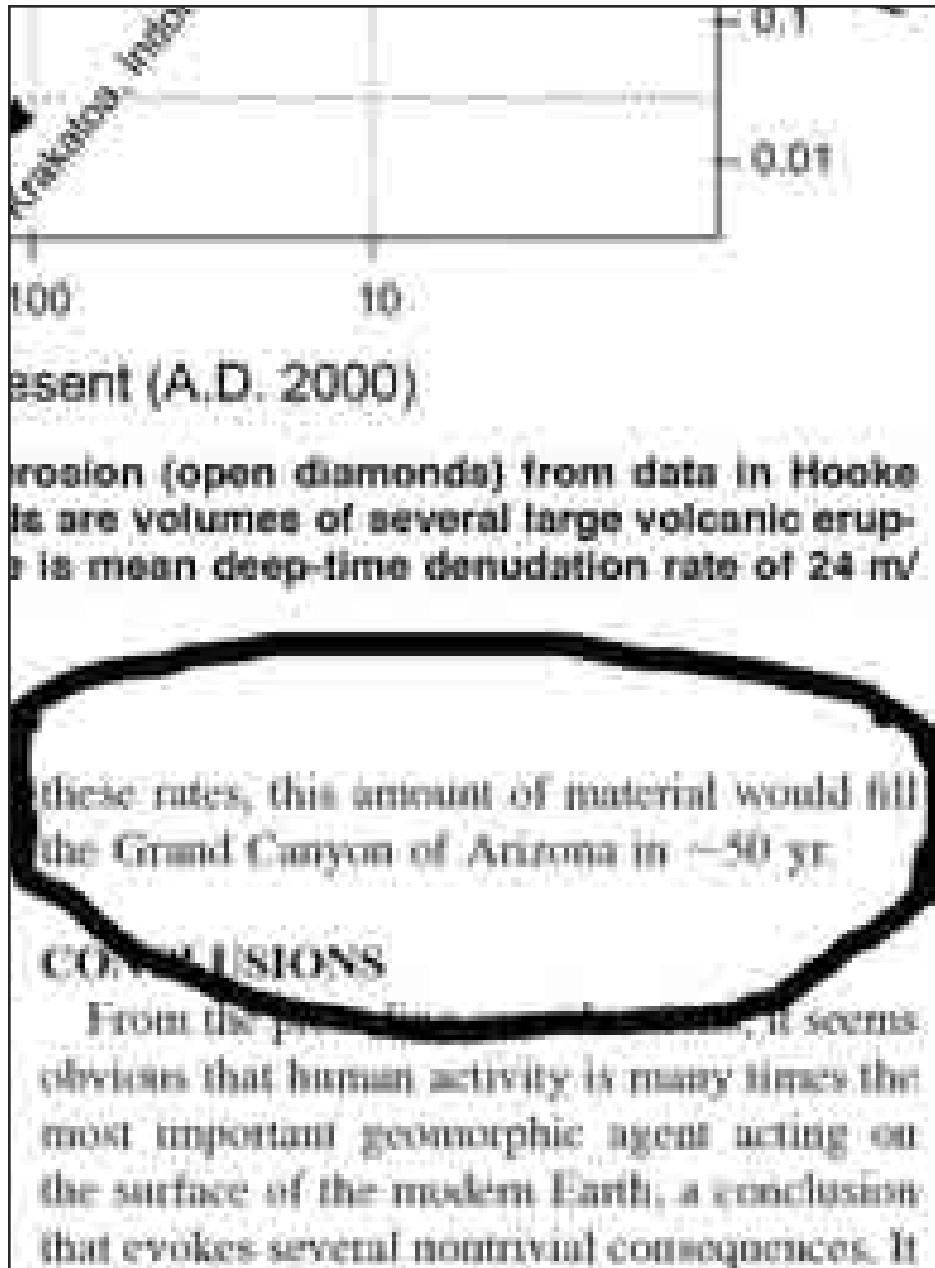
An Incident

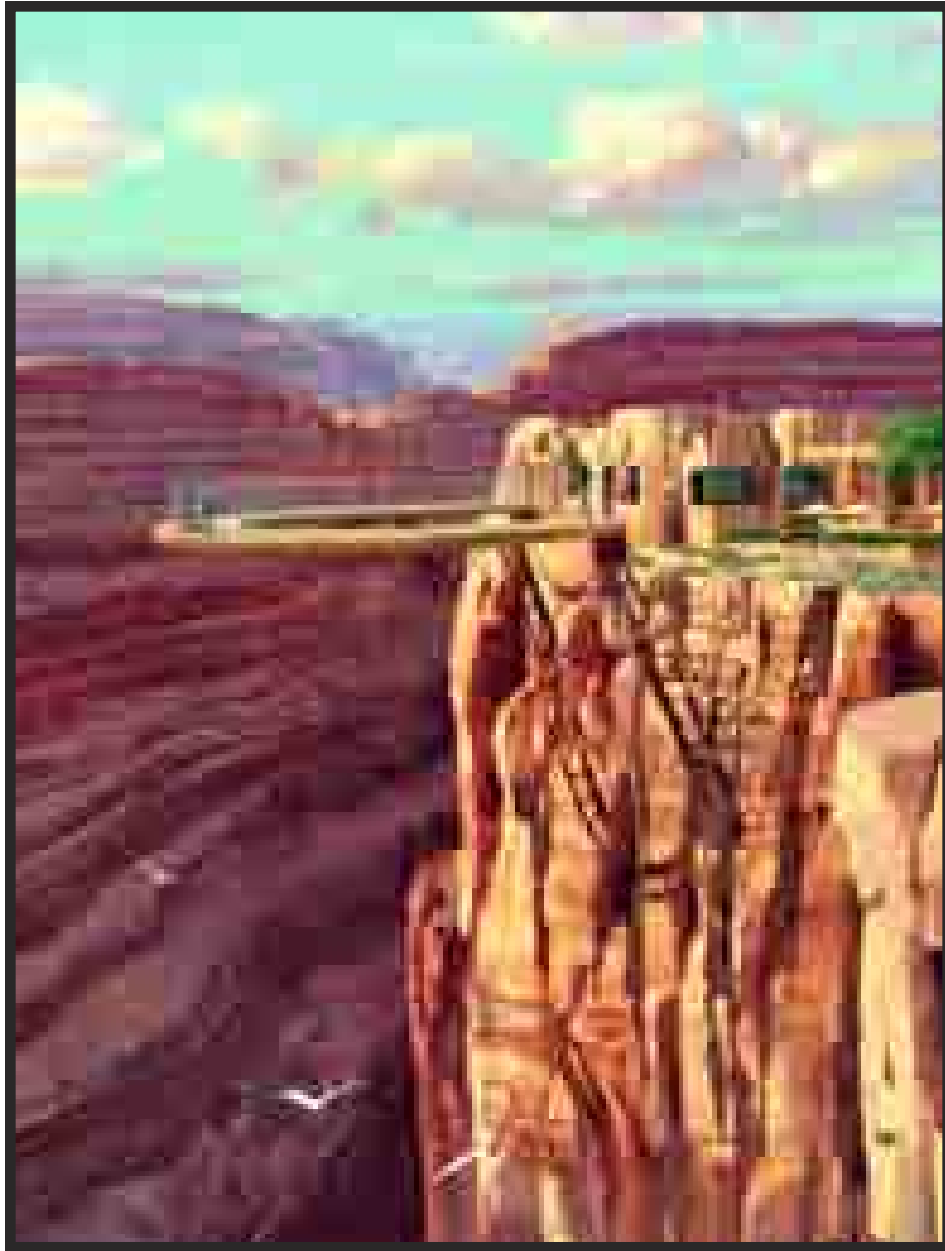
“The Grand Canyon Midair Collision: A Stimulus for Change,” G.K. Murphy, *American Journal of Forensic Medical Pathology*, vol. 11, no. 2, June 1990, pp. 102-5.

A Metaphorical Filling

“Humans as Geologic Agents: A Deep-Time Perspective,” Bruce H. Wilkinson, *Geology*, vol. 33, no. 3, 2005, pp. 161-4). Thanks to Len Finegold for bringing this to our attention. The author explains that:

[C]urrent annual amounts of rock and soil moved over Earth’s surface in response to construction and agricultural practices are 18,000 times that of the 1883 Krakatoa eruption in Indonesia, 500 times the volume of the Bishop Tuff in California, and about 2 times the volume of Mount Fuji in Japan. At 2000), these rates, this amount of material would fill the Grand Canyon of Arizona in approximately 50 years.





What's New With the Grand Canyon?

by Stephen Drew, Improbable Research staff

This publicity drawing shows a new reason for people to either visit or avoid the Grand Canyon. A press release explains:

The Hualapai Nation Unveils All-New Destination Experience at Grand Canyon West

The Skywalk, First-Ever Glass Bridge to Suspend Visitors 4,000 Feet Above the Grand Canyon Floor, to Debut January 2006

The Skywalk will be the featured attraction once it opens to the public in January 2006. Visitors will

be able to walk around the first-ever cantilever shaped glass bridge that will be suspended more than 4,000 feet above the Colorado River and extend over the edge of the Grand Canyon.

The press release undersells the attraction. The glass bridge is not just *shaped like* a cantilever (a projecting beam that is supported at only one end, and carries a load at the other). It *is* a cantilever. And the glass bridge stretches the definition of bridge, possibly beyond the breaking point. A bridge is generally understood to be a structure that joins two things.

Icky Cutesy Research Review

Research reports that are icky and/or cutesy

Compiled by Alice Shirrell Kaswell, Improbable Research staff

Cutesy

“Love and Spaghetti: The Opportunity Cost of Virtue,” Ted Bergstrom, Department of Economics, University of California Santa Barbara, UCSB Econ Paper 1989B, March 1, 1989. Available online at <<http://repositories.cdlib.org/ucsbecon/bergstrom/1989B>>. The author explains that:

This paper was written in the form of two puzzles. One puzzle concerns Romeo and Juliet who love spaghetti and each other. They wear flimsy clothing and have abdominal hedonimeters. The other puzzle asks who benefits from tax deductions to the rich for charitable deductions.

Icky Ornithologically

Guide to Raptor Remains: A Photographic Guide to Identifying the Remains of Selected Species of California Raptors, California Energy Commission, publication #CEC-500-2005-001, January 2005. (Thanks to Bob O'Hara for bringing this to our attention.) The book notes that:

When decomposed carcasses, bone pieces, feathers, or pellets are found under electrical structures, it can be difficult to identify the species. This guide provides a resource for the identification of partial remains of selected avian species.

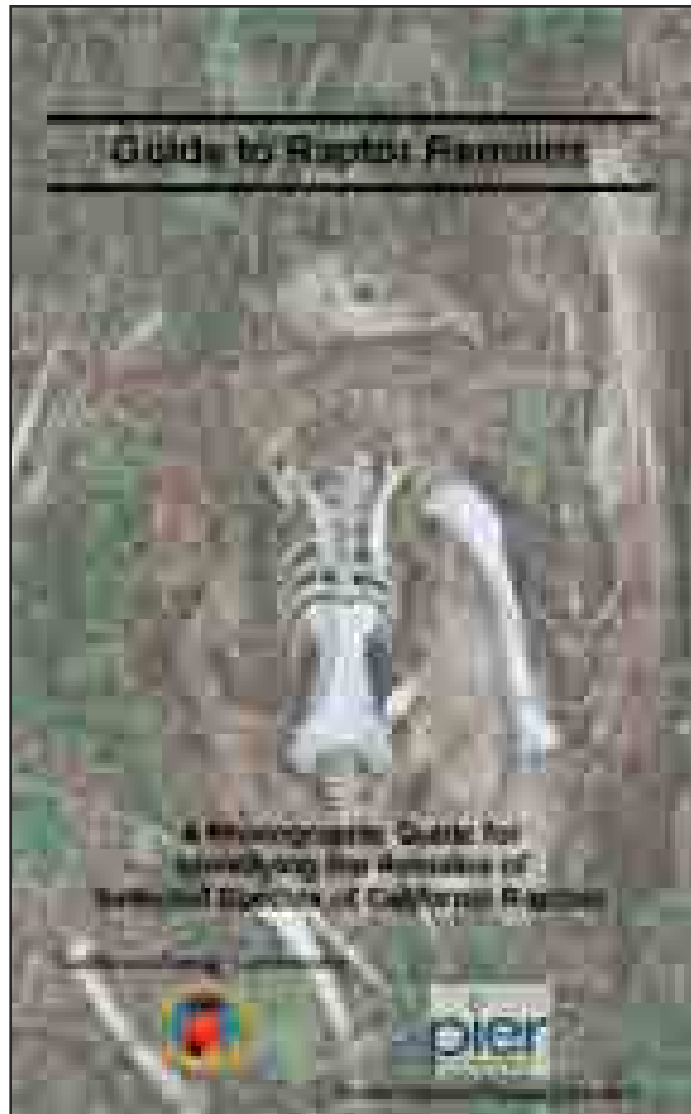
Cutesy

“The Case of the Disappearing Teaspoons: Longitudinal Cohort Study of the Displacement of Teaspoons in an Australian Research Institute,” Megan S.C. Lim, Margaret E. Hellard and Campbell K. Aitken, *British Medical Journal*, vol. 331, December 24, 2005, pp. 1498-1500.

Icky: A Dim View

“Images in Clinical Medicine: Eye Worm,” A. Gupta and S. Kedhar, *New England Journal of Medicine*, vol. 353, no. 25, December 22, 2005, p. e22. The authors report (with photographs -- which are worth looking up, if you dare) that:

A healthy 43-year-old Nigerian man living in the United States noticed something wiggling in his right eye while he was driving. He went to his optometrist, who saw an opaque, thin, undulating worm under the conjunctiva. Attempts to extract the worm were unsuccessful. The irritation and discomfort in the patient's eye abated after one day, and he did not notice the presence of the worm or its movement again until one week later. By the time the patient visited an ophthalmologist, the worm could not be seen. Four days later, the worm wiggled again and was directly observed (arrow, Panel A) and successfully extracted (Panels B and C)....



Soft Is Hard

Further evidence why the “soft” sciences are the hardest to do well

compiled by Alice Shirrell Kaswell and Bissell Mango, Improbable Research staff

Clutter Appreciated

“Office Clutter or Meaningful Personal Displays: The Role of Office Personalization in Employee and Organizational Well-Being,” Meredith M. Wells, *Journal of Environmental Psychology*, vol. 20, no. 3, September 2000, pp. 239-55. (Thanks to G. Neil Martin for bringing this to our attention.)

Teaching Squares About Rectangles

“The Effect of Verbal Instruction and Artistic Background on the Aesthetic Judgment of

Rectangles,” Paul Hekkert, C.E. Peper, and C.W. Piet Van Wieringen, *Empirical Studies of the Arts*, vol. 12, no. 2, 1994, pp. 185-203.

Examined whether artistic background and verbal instructions influence the aesthetic preferences for rectangle proportions. Two types of instruction were used, and their effects on both naive and experienced (art school) students were assessed. Following a subjective instruction, emphasizing personal preference, mean ratings of 12 naive subjects revealed a preference peak around the Golden Section, whereas mean ratings of 12 experienced viewers peaked at the square.... The naive viewers were significantly more consistent in their ratings than the experienced ones.

Authoritarianism: Perceived Pleasantness of Polygons

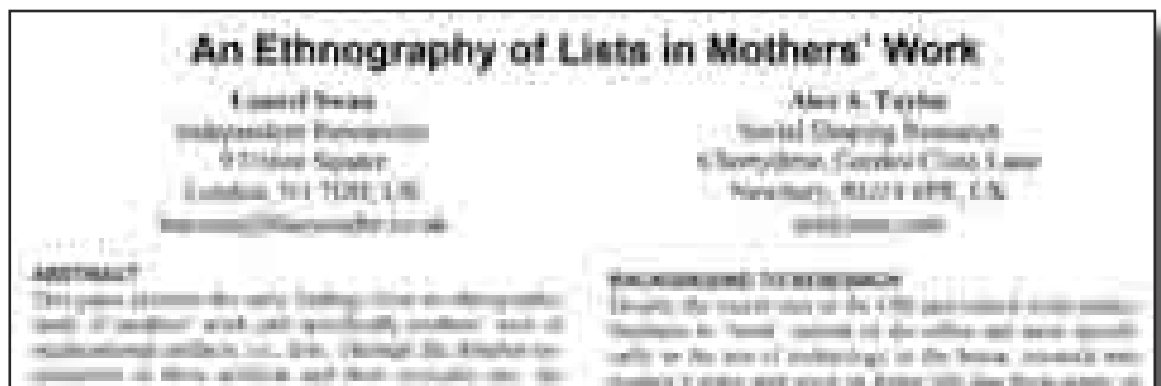
“Authoritarian Attitudes and Aesthetic Preferences: A Bulgarian Replication,” Johann F. Schneider, Krum Krumov, Ludmilla Andrejeva, and Elka Kibarova, *Perceptual and Motor Skills*, vol. 77, no. 1, 1993, pp. 255-8.

Replicated in a Bulgarian political context a German study by J. F. Schneider concerning the effect of stimulus properties of complexity and order and authoritarian attitudes on the perceived pleasantness of polygons. 173 university students in Bulgaria were administered personality/attitude scales measuring dogmatism, ethnocentrism, intolerance of ambiguity, and conservatism. Ss were shown pictures of 64 differently shaped polygons, which they then rated in terms of pleasantness. There were neither significant main effects nor significant interactions for the different measures of authoritarianism, but there were significant main effects for order and complexity.

Moms’ Lists

“An Ethnography of Lists in Mothers’ Work,” Laurel Swan and Alex S. Taylor, paper presented at the Conference on Human Factors in Computing Systems in Vienna in April 2004.

(Thanks to Eugenie Reich for bringing this to our attention.)



Bends on the Learning Curve

Improbable ideas and explanations collected from classrooms

by Richard Lederer

Doctors occasionally see or say things that patients would find surprising. Here are some examples from medical transcriptions:

- Patient has two teenage children, but no other abnormalities.
- The patient was to have a bowel resection. However, he took a job as a stockbroker instead.
- The patient had no recollection of any memory loss.
- At this time he was felling trees and in the process of a tree falling on another tree, he was hit by a tree and thrown face first against another tree.
- His gait is still unsteady and, unfortunately, his already painful great toe on the left had an encounter with a dresser, which was unharmed.
- No one saw any slurred speech after he awoke.

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