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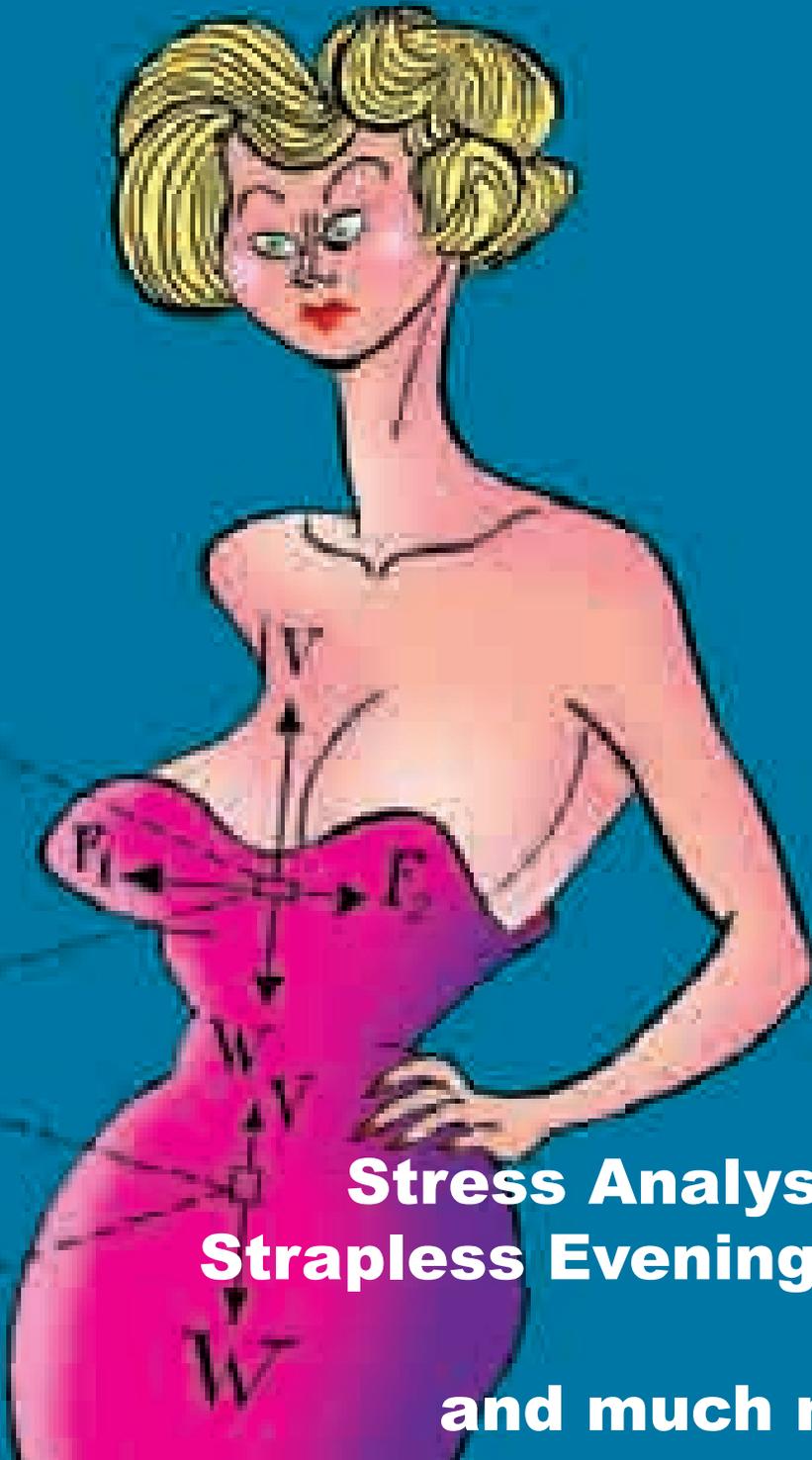
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ANNALS OF

# IMPROBABLE RESEARCH



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**Issue**



**Stress Analysis of a  
Strapless Evening Gown**

**and much more...**



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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*

# Clean Drunk

by Alice Shirell Kaswell, Improbable Research staff

As alcohol-based hand sanitizers become more popular, they inspire curiosity and experiments. Here are four recent studies.

## Cleanliness Plus? (1)

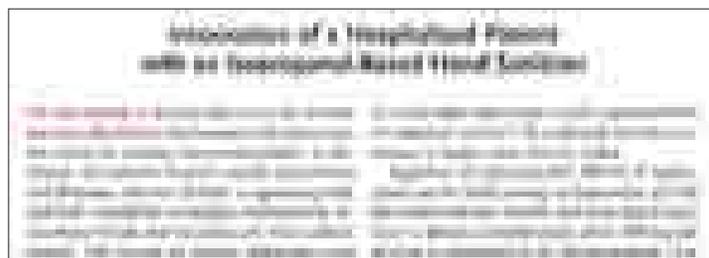
“Alcohol-based hand sanitizer: can frequent use cause an elevated blood alcohol level?”, M.A. Miller, A. Rosin and C.S. Crystal, *American Journal of Infection Control*, vol. 34, no. 3, April 2006, pp. 150–1.

## Cleanliness Plus? (2)

“Does the clinical use of ethanol-based hand sanitizer elevate blood alcohol levels? A prospective study,”

M.A. Miller, A. Rosin, M.E. Levsky, M.M. Patel, T.J. Gregory and C.S. Crystal, *American Journal of Emergency Medicine*, vol. 24, no. 7, November 2006, pp. 815–7. The authors report that:

The results of this study demonstrate that use of ethanol-based hand sanitizers, when frequently used in accordance with labeling, do not raise serum blood ethanol levels.

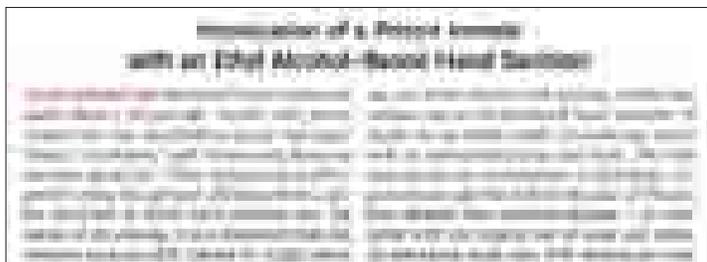


## The Power of a Sanitizer (1)

“Intoxication of a hospitalized patient with an isopropanol-based hand sanitizer,” A. Emadi and L. Coberly, *New England Journal of Medicine*, vol. 356, no. 5, February 2007, pp. 530–1.

## The Power of a Sanitizer (2)

“Intoxication of a prison inmate with an ethyl alcohol-based hand sanitizer,” S. Doyon and C. Welsh, *New England Journal of Medicine*, vol. 356, no. 5, February 2007, pp. 529–30.

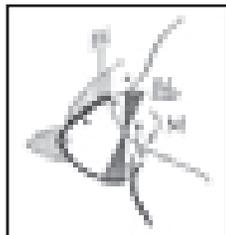


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The features marked with a star (\*) are based entirely on material taken straight from standard research (and other Official and Therefore Always Correct) literature. Many of the other articles are genuine, too, but we don't know which ones.



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now  
digital, too.**

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## On the Back Cover

A technical drawing from U.S. patent # 6601326, granted on August 5, 2003 to Rebecca J. Bublitz and Annette L. Terhorst for a "repositionable display system in the shape of a human figure that can be used to communicate information by holding signs or by making simple gestures".

## Coming Events

(see [WWW.IMPROBABLE.COM](http://WWW.IMPROBABLE.COM) for details of these and other events)

Ig Nobel UK Tour - Mar 2007

University of Maine -- Apr 2007

Improbable Research European Tour -- May 2007

Ig Nobel Prize Ceremony - Oct 4, 2007

Ig Informal Lectures -- Oct 6, 2007

## Every Day

Read something new and improbable every weekday on the Improbable Research blog, on our web site: [WWW.IMPROBABLE.COM](http://WWW.IMPROBABLE.COM)

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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.*

### Finicky About Microbes

I am hard pressed to believe the creature on the cover of your January/February 2007 issue represents a microbe, even a spirited one. It more closely resembles a bat.

*Harriet Provine  
Associate in Microbiology  
and Molecular Genetics  
Harvard Medical School  
Boston, MA*

### Wenze Against Winter

I am writing to you regarding the letter by Dr. Jessica Winter (AIR 12:6). She clearly missed the entire point of Zongker's paper ("Chicken, Chicken, Chicken, AIR 12:5). My paper "Hamster, Hamster, Hamster" reflects the current thinking in this area of academic pursuit.

You may also wish to review the work of S. Wenze (M.A., The American University,

Washington, D.C.) entitled "Lungfluke, Lungfluke, Lungfluke." Our collaboration has lasted nearly three decades and we are experts on such matters.

Kindly clarify this with your readers.

*Dr. Linda Wenze  
Associate Professor  
Department of Health Care  
and Public Administration  
Long Island University,  
C.W. Post Campus*



*Brookville, New York*

### Another Wenze Against Winter

I am writing to you regarding the letter by Dr. Jessica Winter (AIR 12:6), who missed the entire point of Zongker's work (AIR 12:5; "Chicken, Chicken, Chicken"). My work, "Timid, Timid, Timid" reflects the current thinking in this area of academic pursuit.

You may also wish to review the work of L. Wenze, Ph.D.

(Long Island University, Brookville, N.Y.) entitled "Coward, Coward, Coward." Our collaboration has lasted nearly three decades and we are experts on such matters.

Kindly clarify this with your readers.

*Susan Wenze, M.A.  
The American University  
Washington, D.C.*

### Dung Beetles / Dino Discovery

Dung beetles actually feasted on dino dung. I catalyzed that discovery, when, while writing an article for *Smithsonian* ("Nature's own pooper-scoopers keep earth livable for all of us," June 1997), I got the world's expert on fossilized dung, Karen Chin, to send her sample to dung beetle expert Bruce Gill. Gill confirmed that the tunnels in her coprolites had been dug by dung beetles. "This thing looks just like a modern-day piece of dung that has been colonized by dung beetles," Gill told me at the time. This added 36 million years to the known existence of dung beetles.

*David Holzman  
Lexington, MA*

### Shakespeare on the Nut

I have found what appears to be an early reference to the quarrel about the nut. This is a passage from the beginning of Act III of Shakespeare's "Romeo and Juliet." The older

boy has just instructed the hand-clasped twins. Here is the most relevant paragraph.

Nay, an there were two such, we should have none shortly, for one would kill the other. Thou! why, thou wilt quarrel with a man that hath a hair more, or a hair less, in his beard, than thou hast:

thou wilt quarrel with a man for cracking nuts, having no other reason but because thou hast hazel eyes: what eye but such an eye would spy out such a quarrel?

Thy head is as fun of quarrels as an egg is full of meat, and yet thy head hath been beaten as addle as an egg for quarrelling: thou hast quarrelled with a man for coughing in the street, because he hath wakened thy dog that hath lain asleep in the sun: didst thou not fall out with a tailor for wearing his new doublet before Easter? with another, for tying his new shoes with old riban.

*Tom Roberts  
Concord, MA*



## Mel Down Under

I write concerning some concerns I have about the true identity of that little man Mel. While I agree that the photo showing Mel in Barcelona in 1929 is suggestive and hard to refute (*AIR* 12:6), other photos in earlier issues appear to be less so. As a long-time



member of the Norwood Football Club (Australian Football, for your non-Australian readers), I was shocked to discover that Mel is actually a member of the club's inaugural 'Hall of Fame'. He is pictured below (number 17), surrounded by other 'greats' of our club, but is erroneously listed as Sir Edwin T. Smith KCMG. The photo is from ca. 1915, in Adelaide. I am almost certain

this is Mel and will be suggesting

strongly to both the local Football and Cricket Associations to change the names of the two Edwin T. Smith grandstands and the Edwin T. Smith fountain to reflect the true identity of this man. This Mel was certainly a versatile chap with broad interests. I trust this has been helpful. Incidentally, I am led to believe that the boy



restore what little of my reputation can be restored.

*Ramon Corbut Senior Archivist of the Brothers of Historical Institute Barcelona, Spain*

to Mel's left is 2005 Nobel Prize winner (Medicine) Barry Marshall.

*Craig Williams  
Lecturer in Biology  
University of South Australia*

## Mel in Barcelona, Corrected Again

Thank you (again) for publishing the photograph from our archives that shows Mel during his brief visit to the city of Barcelona in 1929, and especially for publishing the correction. I am very sorry to say that I was not correct in my correction. Here is the photograph with the arrow correction corrected, so that it points to Mel where he really was. As I wrote in my original letter which you kindly published, "Unfortunately he is not facing directly the camera, so the identification cannot be 100 percent." I hope you can print this corrected corrected photograph and

### 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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## Goodbye, Bob

We note with great sadness the death of editorial board member Bob Frenay, a friend, a collaborator and an inspiration. His new book, *Pulse*, is one of the great science books.

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---

# Improbable Research Review

*Improbable theories, experiments, and  
conclusions*

compiled by Dirk Manley, Improbable  
Research staff



## Decrepitude on High

“Mental Decrepitude on the U.S. Supreme Court: The Historical Case for a 28th Amendment,” David J. Garrow, *University of Chicago Law Review*, vol. 67, no. 4, Fall 2000, pp. 995–1087.

## Eggless Macaroni Timing

“The Timing of Egg Loss in Macaroni Penguins,” Kate E. Barlow, *Antarctic Science*, vol. 13, 2001, pp. 286–7. (Thanks to Tom Gill for bringing this to our attention.)

## Disturbance

“Awakening Effects of Simulated Sonic Booms and Aircraft Noise on Men and Women,” Jerome. S. Lukas, *Journal of Sound and Vibration*, vol. 20, no. 4, February 22, 1972, pp. 457–66. The author, who is at Southampton University, U.K., reports that:

“[My] result contradicts a previous finding with animals and suggests that sonic booms are likely to be more startling in quiet environments than noisy ones.”

## Precursor to a Weep

“Plant Biochemistry: An Onion Enzyme that Makes the Eyes Water,” S. Imai, N. Tsuge, M. Tomotake, Y. Nagatome, H. Sawada, T. Nagata and H. Kumagai, *Nature*, vol. 419, no. 6908, October 2002, p. 685. (Thanks to Tomiko Hiyakawa for bringing this to our attention.) The authors state:

The irritating lachrymatory factor that is released by onions when they are chopped up has been presumed to be produced spontaneously following the action of the enzyme alliinase, which operates in the biochemical pathway that produces the compounds responsible for the onion’s characteristic flavour. Here we show that this factor is not formed as a by-product of this reaction, but that it is specifically synthesized by a previously undiscovered enzyme, lachrymatory-factor synthase.



## IQ and the Missing -ly

“High IQ Adolescents Under Stress: Do They Perform Poor [sic] in Academics,” Poonam R. Malik and Shanti Balda *Anthropologist*, vol. 8, no. 1, January 2006, pp. 61–2.

*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*



## Injuries of Competitive Irish Dancers

“The Injuries of Competitive Irish Dancers,” D. McGuinness and C. Doody, *Journal of Dance Medicine and Science*, vol. 10, nos. 1 and 2, 2006, pp. 35–9. (Thanks to Adrian Smith for bringing this to our attention.)

## Dikshit on Rat Globin

“Inhibition of Platelet Aggregation by Rat Globin,” M.P. Singh, S. Sinha, S.A. Raghavan and M. Dikshit, *Thrombosis Research*, vol. 107, no. 5, September 1,

2002, pp. 201–7.

## Flaming Redheads, et al.

“The Hair Color–Highlighting Burn: A Unique Burn Injury,” W. Peters, *Journal of Burn Care and Rehabilitation*, vol. 21, no. 2, March 2000, pp. 96–8. (Thanks to Reto Schneider for bringing this to our attention.)

## Turbulence

“Effects of Jet Aircraft Noise on Mental Hospital Admissions,” W.C. Meecham and H.G. Smith, *British Journal of Audiology*, vol. 11, no. 3, August 1977, pp. 81–5. (Thanks to the British Society of Audiology for providing a copy.) The authors report that:

We study, in the vicinity of Los Angeles International Airport, the effect of jet noise on mental hospital admissions. The maximum noise area shows a 29% increase in admissions over those of a corresponding control area, as like the target area as possible, except that in the control area jet noise is not a dominant factor. The results are similar to those of a previous study carried out near Heathrow Airport.

## New Nose or No, They Know

“The Ideal Nasal Profile: Rhinoplasty Patients vs. the General Public,” David C. Pearson and Peter A. Adamson, *Archives of Facial Plastic Surgery*, vol. 6, no. 4, July–August 2004, pp. 257–62. The authors, who are respectively at the Mayo Clinic, Rochester, Minnesota and the University of Toronto, summarize their work thus:

**OBJECTIVES:** To evaluate whether patients seeking reduction rhinoplasty hold a different concept of the ideal nose than does the general public, and to determine what features characterize the ideal nasal profile.

**CONCLUSIONS:** Reduction rhinoplasty patients do not appear to have a different concept of the ideal nose than does the public at large.



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

# A Stress Analysis of a Strapless Evening Gown

by Charles Seim  
Berkeley, California

[Editor's note: Charles Seim wrote this article in 1956. We are republishing it here with his permission. Seim went on to become one of the world's most renowned bridge designers. On February 16, 2007, for the first time ever, he presented "Stress Analysis" as a public lecture. This was a featured part of the Improbable Research show at the American Association for the Advancement of Science's Annual Meeting, held in San Francisco. Here is the full text of the original article.]

Since the beginning of recorded history, the human being has worn some sort of clothing either for protection or warmth. However, the present trend among the "fair sex" is to wear clothing not for protection or warmth, but solely to attract the attention of the opposite sex. To be more specific, it is through the use of clothing that the female most effectively catches the eye of the very appreciative but totally unsuspecting male.

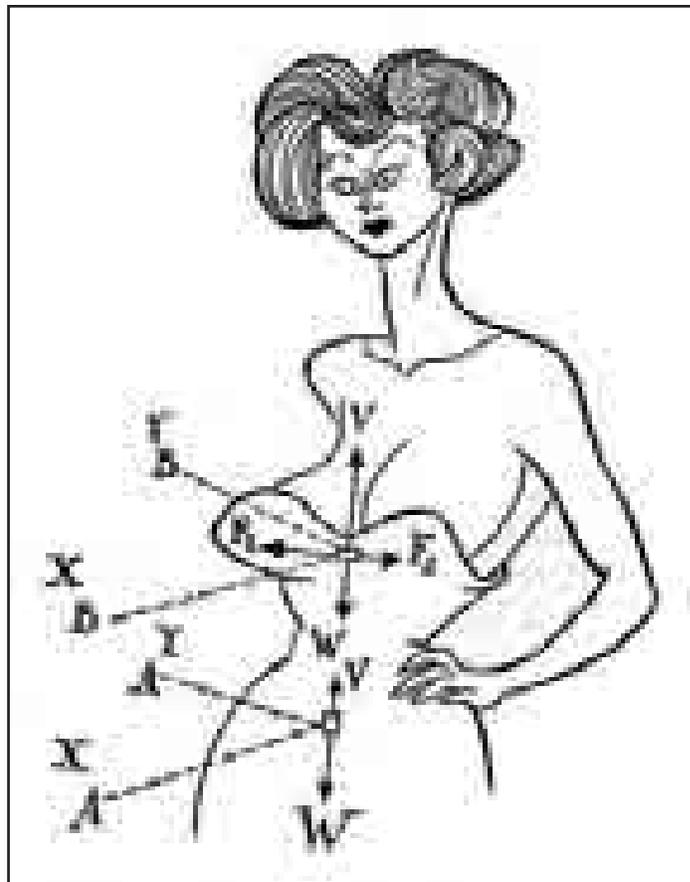


Figure 1. Forces acting on cloth element.

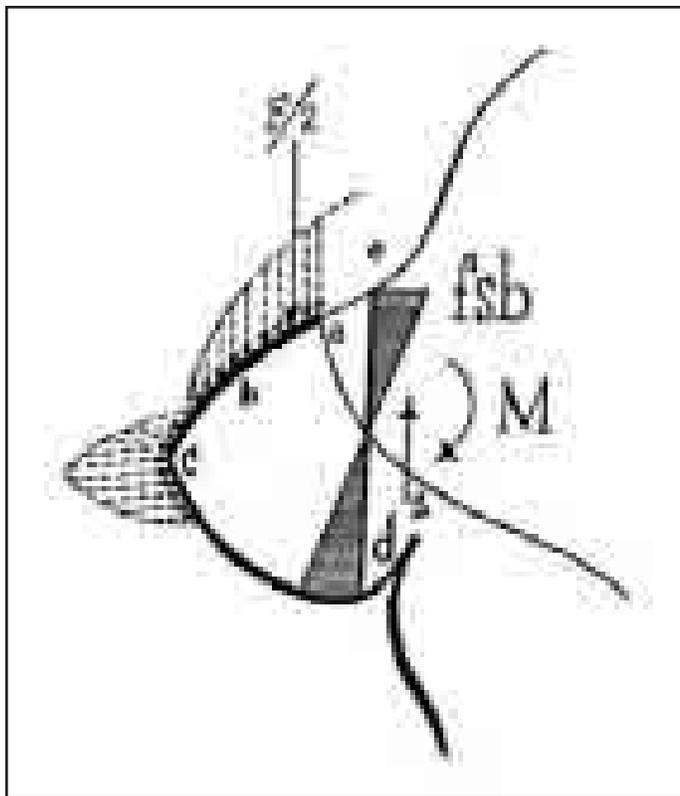
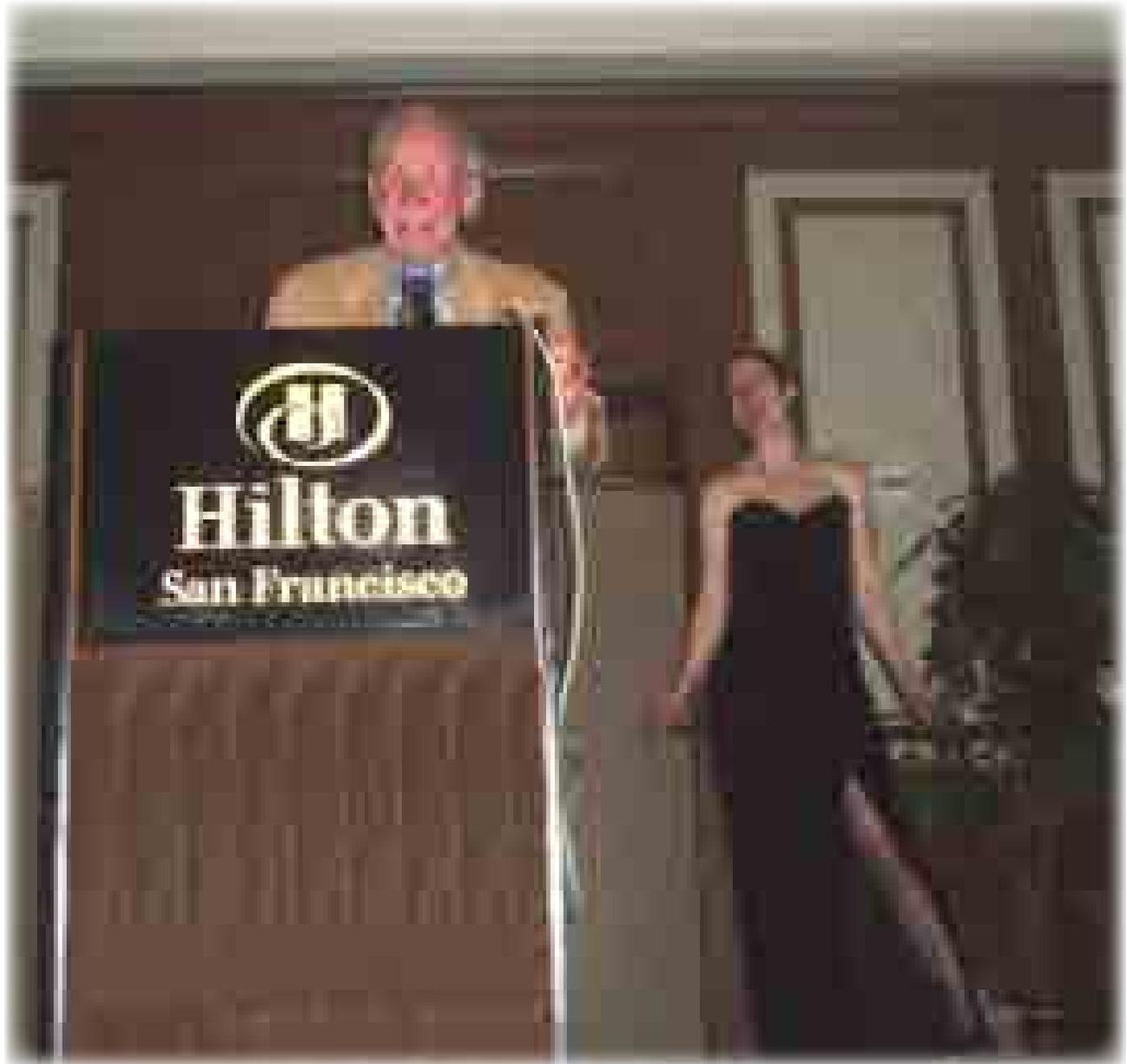


Figure 2. Force distribution of cantilever beam ( $fsb$  = flexural stress in beam).

A variety of methods are employed to bring about this libido-awakening infliction on the poor male. One very popular method employed by the female is to wear transparent or seemingly transparent cloth to good advantage in certain areas. A common example is the transparent nylon blouse. Another powerful attractant is the tightly fitted garment. A well-known example of the type of weapon is the sweater. Yet another provoking method is by actually reducing the extent of body surface covered by cloth. A good example of this method is the modern bathing suit (e.g., Bikini). A delightful device which has sufficiently aroused the masculine sex is the use of durable but fragile-appearing cloth which gives the impression that at any moment the garment will slip down or that, better yet, certain parts may slip out of place. The best example of this method of attracting the attention of the weak and susceptible male is the strapless evening gown.

Effective as the strapless evening gown is in attracting attention, it presents tremendous engineering problems to the structural engineer. He is faced with the problem of designing a dress which appears as if it will fall at any moment and yet actually stays up with some small



factor of safety. Some of the problems faced by the engineer readily appear from the following structural analysis of strapless evening gowns.

If a small elemental strip of cloth from a strapless evening gown is isolated as a free body in the area of plane A in Figure 1, it can be seen that the tangential force  $F_1$  is balanced by the equal and opposite tangential force  $F_2$ . The downward vertical force  $W$  (weight of the dress) is balanced by the force  $V$  acting vertically upward due to the stress in the cloth above plane A. Since the algebraic summation of vertical and horizontal forces is zero and no moments are acting, the elemental strip is at equilibrium.

Consider now an elemental strip of cloth isolated as a free body in the area of plane B of figure 1. The two tangible forces  $F_1$  and  $F_2$  are equal and opposite as before, but the force  $W$  (weight of dress) is not balanced by an upward force  $V$  because there is no cloth above plane B to supply this force. Thus, the algebraic summation of horizontal forces is zero, but the sum of the vertical forces is not zero. Therefore, this elemental strip is not in equilibrium; but it is imperative,

*The author presenting a lecture based on this study, in February 2007 at the American Association for the Advancement of Science's annual meeting. Dr. Rebecca Slayton, right, helps demonstrate the basic concepts. Dr. Slayton has a Ph.D. in chemistry from Harvard University. She is a lecturer in the Science, Technology and Society Program at Stanford University. She is currently working on a book which uses the history of the U.S. ballistic missile defense program to study the relationships between and among technology, expertise, and the media.*

---

for social reason, that this elemental strip be in equilibrium. If the female is naturally blessed with sufficient pectoral development, she can supply this very vital force and maintain the elemental strip at equilibrium. If she is not, the engineer has to supply this force by artificial methods.

In some instances, the engineer has made use of friction to supply this force. The friction force is expressed by  $F = fN$ , where  $F$  is the frictional force,  $f$  is the coefficient of friction and  $N$  is the normal force acting perpendicular to  $F$ . Since, for a given female and a given dress,  $f$  is constant, then to increase  $F$ , the normal force  $N$  has to be increased. One obvious method of increasing the normal force is to make the diameter of the dress at  $c$  in figure 2 smaller than the diameter of the female at this point. This has, however, the disadvantage of causing the fibers along the line  $c$  to collapse, and if too much force is applied, the wearer will experience discomfort.

As if the problem were not complex enough, some females require that the back of the gown be lowered to increase the exposure and correspondingly attract more attention.

In this case, the horizontal forces  $F_1$  and  $F_2$  (Figure 1) are no longer acting horizontally, but are acting downward at an angle shown (on one side only) by  $T$ . Therefore, there is a total downward force equal to the weight of the dress below  $B$  + the vector summation of  $T_1$  and  $T_2$ . This vector sum increases in magnitude as the back is lowered because  $F = 2Ts$  in  $a$ , and the angle  $a$  increases as the back is lowered. Therefore, the vertical uplifting force which has to be supplied for equilibrium is increased for low-back gowns.

Since there is no cloth around the back of the wearer which would supply a force perpendicular to the vertical axis of the female that would keep the gown of the lady from falling forward, the engineer has to resort to bone and wire frameworks to supply the sufficient perpendicular forces. (Falling of dress forward, away from the wearer, is considered unfair tactics among females.)

If the actual force supplied is divided by the minimum force that is required to hold the dress up, the resulting quotient defines a factor of safety. This factor could be made as large as desired, but the engineers are required to keep the framework light and inconspicuous. Therefore, a compromise must be made between a heavy framework and a low factor of safety.

With ingenious use of these frameworks, the backs of strapless gowns may be lowered until cleavage is impending.

Assuming that the female is naturally endowed to supply the vertical force  $V$ , the problem is still left incomplete unless an analysis is made of the structures supplying this force. These structures are of the nature of cantilever beams. Figure 2 shows one of these cantilever beams (minus any aesthetical details) removed as a free body (and indeed, many such beams can be, in reality, removed as free bodies; e.g., certain artifacts). Since there are usually two such divided, the force acting on any one beam is  $F/2$  and it is distributed over the beam from  $a$ . to  $c$ . Here exposure and correspondingly more attention can be had by moving the dress line from  $a$ . toward  $b$ . Unfortunately,

there is a limit stress defined by  $S = F/2A$  ( $A$  being the area over which the stress acts). Since  $F/2$  is constant, if the area  $A$  is decreased, the bearing stress must increase. The limit of exposure is reached when the area between  $b$  and  $c$  is reduced to a value of "danger point."

A second condition exists which limits the amount of exposure. Vertical force  $F/2$  is balanced by sheer force  $S$  acting on an area from  $d$  to  $e$  and by an internal moment  $M$ . The moment  $M$  causes tension in the fibers over the beams between  $e$  and  $a$ , and compression in the fibers between  $c$  and  $d$ . As the dress line is moved from  $A$  toward  $B$ , the moment  $M$  is increased, increasing the tension and compression again till "danger point."

Since these evening gowns are worn to dances, an occasional horizontal force, shown in Figure 2 as  $i_1$ , is accidentally delivered to the beam at the point  $c$ , causing impact loading, which compresses all the fibers of the beam. This compression tends to cancel the tension in the fibers between  $e$  and  $b$ , but it increases the compression between  $c$  and  $d$ . The critical area is at point  $d$ , as the fibers here are subject not only to compression due to moment and impact, but also to shear due to force  $S$ ; a combination of low, heavy dress with impact loading may bring the fibers at point  $d$  to the "danger point."

There are several reasons why the properties discussed in this paper have never been determined. For one, there is a scarcity of these beams for experimental investigation. Many females have been asked to volunteer for experiments along these lines in the interest of science, but unfortunately, no cooperation was encountered. There is also the difficulty of the investigator having the strength of mind to ascertain purely the scientific facts. Meanwhile, trial and error and shrewd guesses will have to be used by the engineer in the design of strapless evening gowns until thorough investigations can be made.

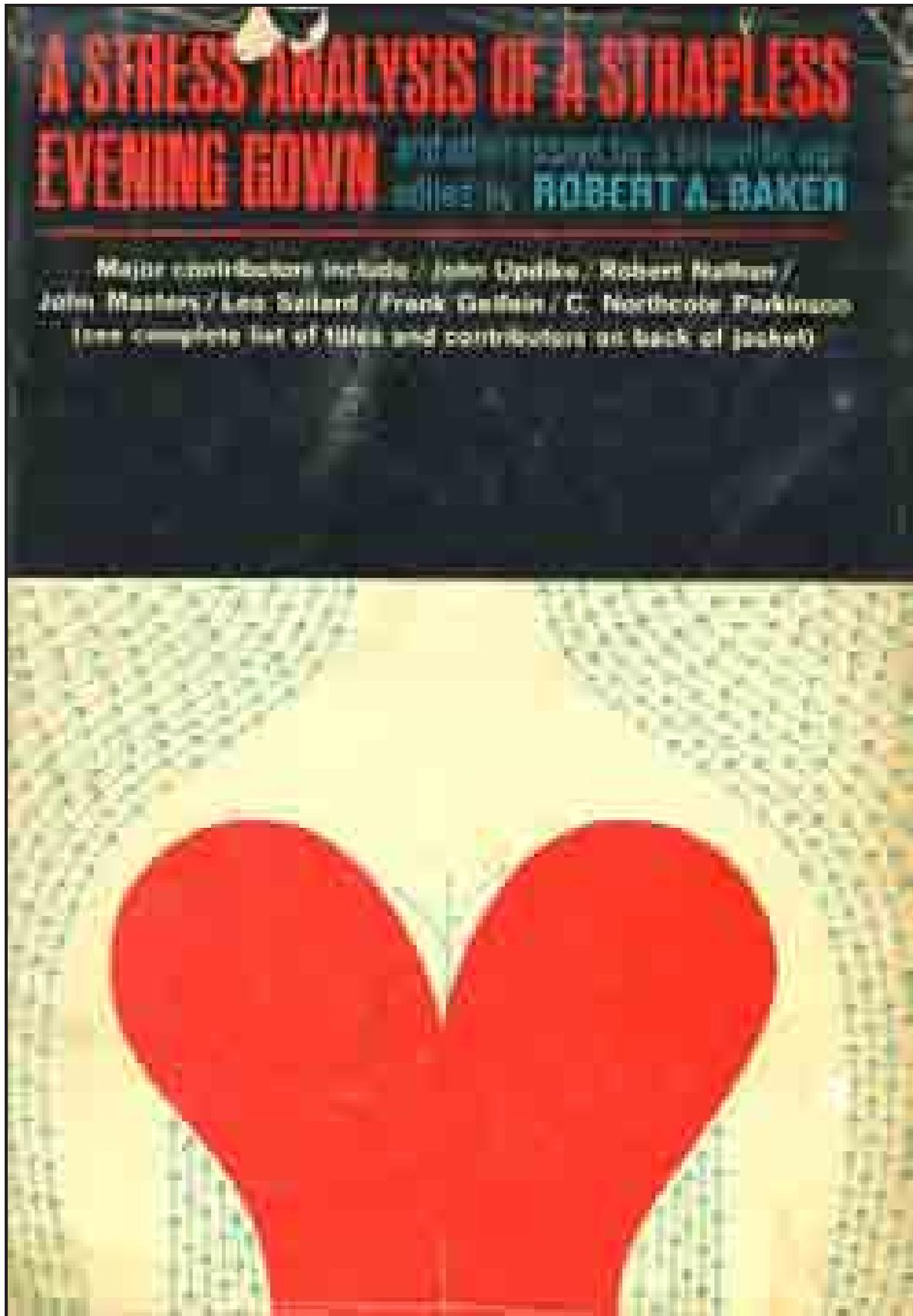


In 1992, singer / jazz-harpist Deborah Henson-Conant composed a five-movement musical version of “Stress Analysis of a Strapless Evening Gown,” based on Charles Seim’s engineering essay. The movements are:

1. Introduction and waltz
2. Compression and tension
3. Gossamer
4. The Danger Zone
5. Curves

It premiered on Saturday night, November 21 of that year at the Regattabar Jazz Club in the Elliot Hotel in

Harvard Square, Cambridge. Henson-Conant, wearing a strapless evening gown, performed it together with The Really Eclectic String Quartet. Subsequently, she performed the piece in jazz clubs around the world. On Saturday, February 10, 2001, Henson-Conant performed it together with the Springfield (Massachusetts) Symphony orchestra, and has since performed with other orchestras around the world. In 2006 Henson-Conant and the Grand Rapids Symphony released a DVD and CD titled “Invention & Alchemy,” which featured part of the “Stress Analysis of a Strapless Evening Dress.” The DVD was nominated for a Grammy Award in the category of “Best Classical Crossover Album.”



*The cover of the 1963 book.*

# The Birth of “Strapless Evening Gown”

by Charles Seim  
El Cerrito, California

[Editor’s note: This was written in February 2007, a few days after Charles Seim gave his first public lecture about Stress Analysis of a Strapless Evening Gown.]

I wrote “Stress Analysis of a Strapless Evening Gown” in my senior year in Civil Engineering at the University of California, Berkeley. At the time I was the Associate Editor of the *Cal Engineer*, a monthly magazine produced by students in the College of Engineering.

The editor of the *Cal Engineer* had seen a short article in an engineering magazine from another university on the topic and he showed it to me, asking if I could write a better essay. I replied, “Sure I can!”

## The Research

I spent many more hours developing the engineering (it is a legitimate analysis) and writing the article than I ever dreamed it would take; the writing of the article definitely cut into my homework time (engineering students at that time were given 4 to 5 hours of homework every night!).

When the *Cal Engineer* published my essay, that issue sold out immediately! The essay was the talk of the engineering campus, and every one seemed to appreciate and enjoy the article.

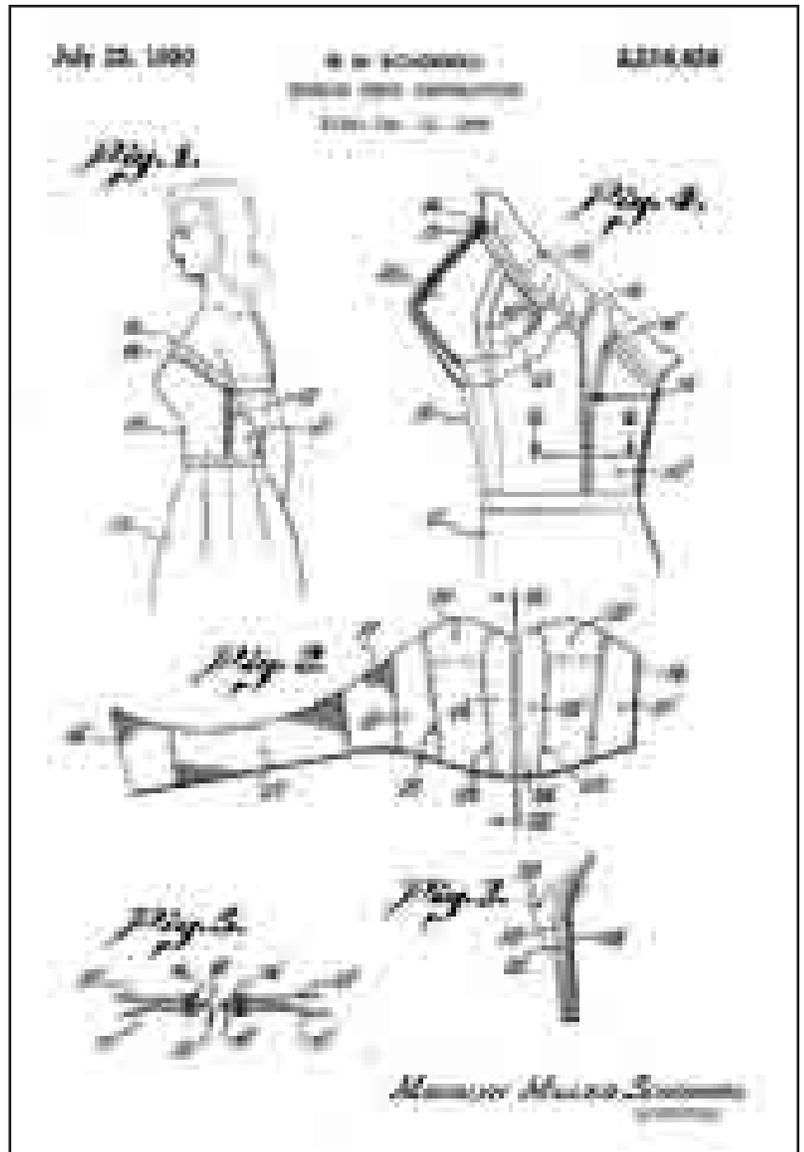
During the time I was writing, I kept wondering if the article was too risqué. By today’s standards, it is merely “lukewarm” and doesn’t even come close to being “risqué.” How times have changed in 55 years!

## A Stressed Analyst of a Strapless Evening Gown

Near the close of my senior year, I was feeling very cocky. I had made it all the way through my other exams and through all the homework, so (I thought) I must know every thing about Engineering! Besides, I had even written a successfully-received story about the lack of straps on a garment!

In the next to last meeting of my four-hour long, weekly Statics of Structures class, the professor told the class to be sure to bring slide rules to the last class because he was going to give us one last exam. I thought he was joking—give one more test on the last day of our last class as an undergraduate!

But I took my slide rule to that last class, just in case. My jaw dropped a foot when the professor walked into the room carrying a stack of papers that could only be—*another test!* So he hadn’t been joking, after all!



Technical drawings from a 1950 patent for a strapless evening gown.



I was sitting by a window that overlooked the campanile (a phallic symbol standing at the center of the campus). The campanile had a large clock on each of its four faces and I could see one face very clearly from my perch on the second floor.

The professor passed out the test and stated in a very serious tone that he believed no Senior Engineering student should graduate from the Berkeley campus without a thorough understanding of the theory of the Statics of Structures—and he obviously meant exactly that!

I opened the test and found six problems, that the professor had assured the class were *simple*, on the fundamentals of statics. I could not figure out solutions to any of them! Damn the “Stress Analysis of a Strapless Evening Gown” and the study time I had wasted in writing that essay! I was struck by the irony that the first title I had given to the essay was “The *Static* Analysis of a Strapless Evening Gown.”

I looked at the campanile clock—it was then 1:30 p.m. and I had three and a half hours to go! I frantically searched for one problem that I could at least start to solve. I was petrified with fear. Damn that strapless evening gown essay and damn me for wasting my study time on writing the evil thing! I thumbed through my test pages so many times that the papers were crinkled!

Why can't I find a starting point? Damn that strapless evening gown! The clock kept moving—2 p.m., 3 p.m.! Damn that gown! Because of that gown, I was going to flunk out of school in my last year! Almost every one else had finished and left. One

hour and three students remained—at least I wasn't the only student still there!

I turned the pages one more, desperate time, and then I saw it! I saw the start of a solution to one problem! I finished that page and turned to the next page; again, I saw another solution! I worked my slide rule back and forth. The clock said 3:30, but I was moving and my slide rule was going! I turned to the next page and another solution popped out, then another! At 4:45 pm, exhausted, and now blessing the Goddess of the Gown, I smugly handed my paper to my professor!

I now wish to convey my profound respect for this professor, widely known for his contributions to engineering, and who was an excellent teacher and a mentor to me; and I passed.

## Recurrences of the Analysis

The essay was first published in the *Cal Engineer* in 1952 and then appeared in a 1963 as the title essay of a book of “Essays for a Scientific Age” published by Prentice Hall, Inc. It reappeared in 1969 in an Anchor Book Edition and again in 1987 by Prentice Hall, Inc., both in paperback editions.

## From Busts to Bridges

Many good things have happened to me in the 55 intervening years. I was hired by Caltrans to work on the design and construction of several state-owned toll bridges. Later, I was invited to assume a position at T.Y. Lin International under the personal guidance of Prof. T.Y. Lin (or TY as he preferred to be addressed) who was my professor in several engineering courses at Berkeley.

I have worked on bridges throughout the United States and South America. For the last ten years, I have worked on a number of bridge projects in Asia.

Along the way, I bumped into many friends and engineers who have asked me about the Strapless Evening Gown essay; one even characterized it as the “The Gownless Evening Strap.”

I would like to be recognized for my work in bridge engineering but I am also pleased to be known as the author of the SAOASEG!

# The Cost of a Child

*An insight into modern economics*

by Wendy Cooper  
Canberra, Australia

In case you who are considering having a child and are contemplating the costs of birthing and raising him or her, here is something you might find interesting.

You can now buy a child under 10 years of age for only \$14.00 at The Marketplace at Gungahlin (near where I live). I did this the other day (see receipt). By all accounts this is an absolute bargain. Granted, it is not as much fun as the “standard” way of obtaining a child, but think of the advantages of not having morning sickness and labour pains! In Australia, our very conservative and “family-oriented” Prime Minister offers a “baby bonus” of several thousand dollars for couples having children and thus overpopulating the planet. I am not clear if I am eligible for the “baby bonus” as a result of my purchase.

Presumably children older than 10 years cost a different amount, but I don’t know if they are more or less expensive.



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The world’s most untranslatable books have (some of them) been translated into CHINESE, GERMAN, ITALIAN, SPANISH, JAPANESE, DUTCH, POLISH, FRENCH, and other languages including, to some extent, the original ENGLISH.

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# A is for Acceleration

## The Letters of Physics

by Jeremy Gorman  
Fredericton, New Brunswick, Canada

Drawings by Marian Parry

Textbook excerpts are from Practical Physics by Sir Richard Glazebrook and W. Napier Shaw, 1893, Longmans, Green and Co., London

You'd think there were enough. You'd think  
There were no need for tricks.  
The letters of our alphabet  
Seem plenty— twenty-six.

The choices should be obvious  
When making letters stand  
For quantities of physics. Well,  
Things weren't quite that well-planned.

The quantities are many,  
And the letters not enough.  
Some choices feel intuitive,  
But some feel off-the-cuff.

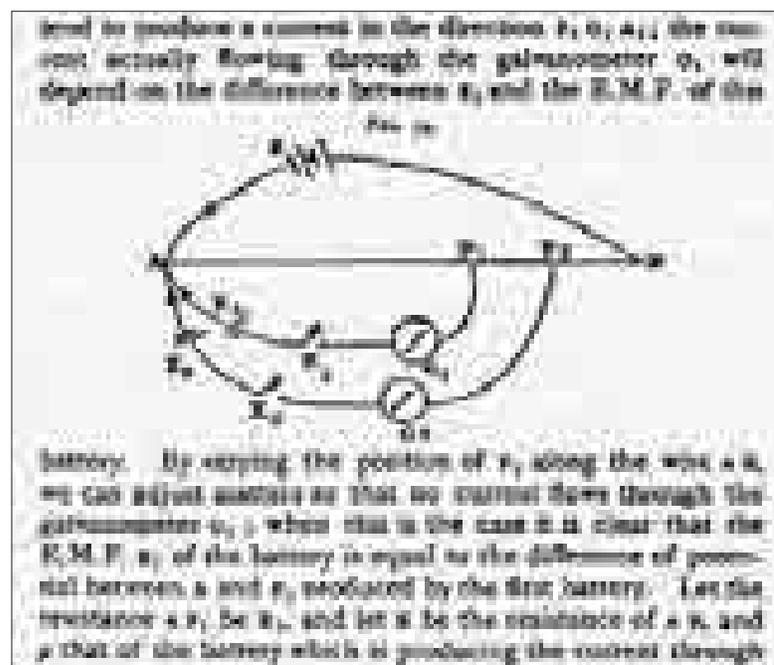
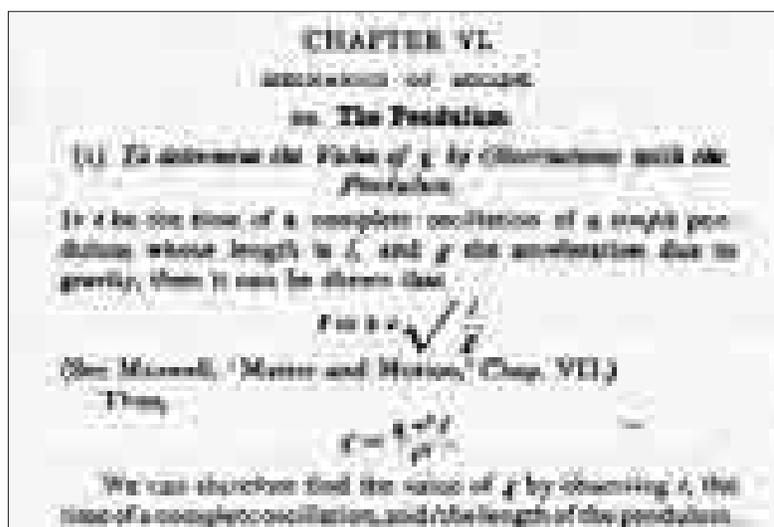
Yes, some are fairly obvious,  
But others feel make-do.  
In case you have forgotten, kids,  
Let's do a quick review.

**A** is for acceleration.  
**B**, magnetic field.  
**C** is for the speed of light  
That prism tests revealed.

**D**'s the distance that we've come.  
Electric field? That's **E**.  
And **F** helps us to do things just  
A bit more forcefully.

Got gravity? Well, **g**, that's good.  
Got height? **H** tells how high.  
Got any inkling why it is  
That current goes by "**I**"?

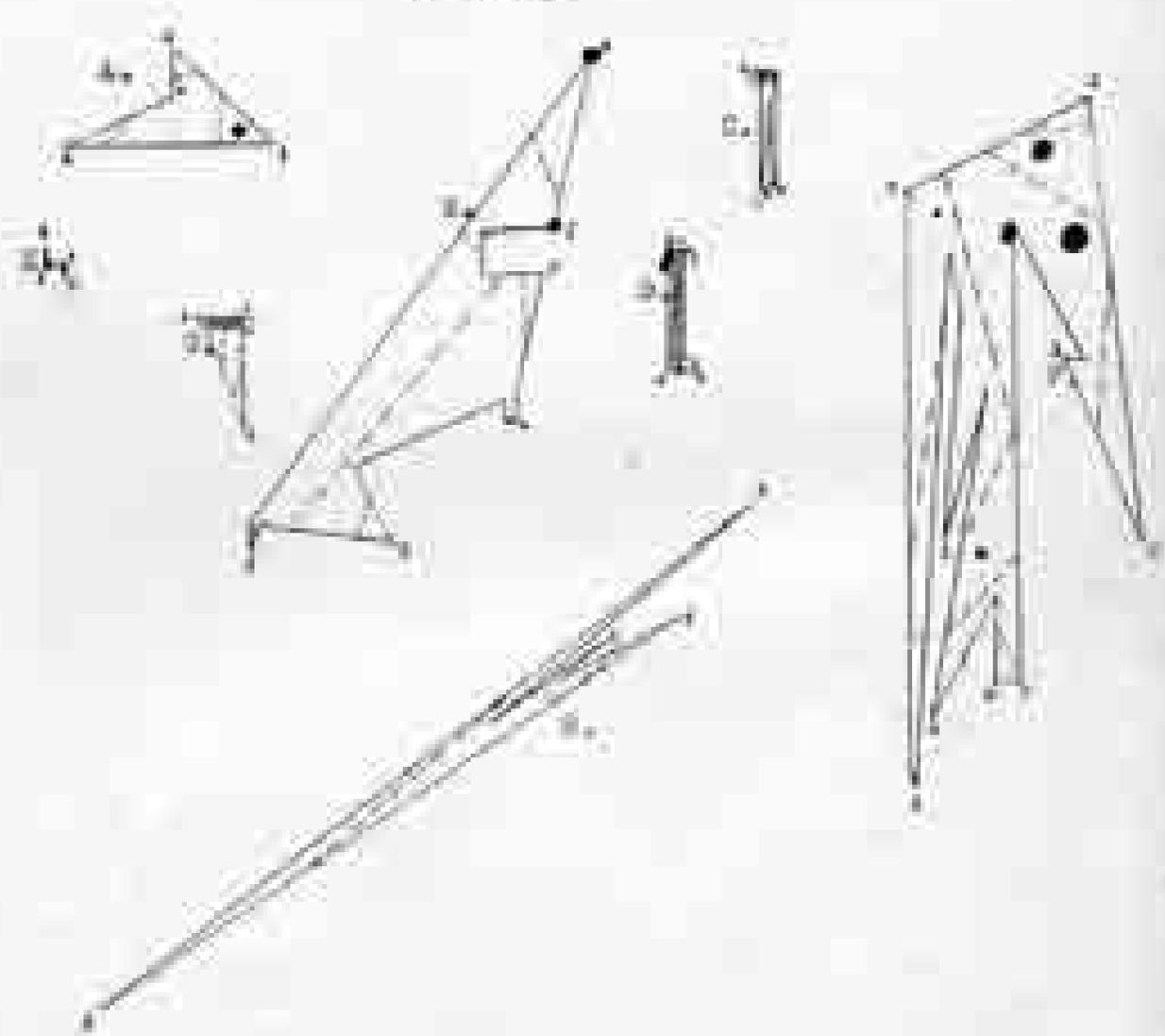
Are precious **Joules** just energy?  
If my school text is right,  
To swipe these Joules, all you need do  
Is leave lights on all night.





PROBABLE & PROBABLY  
 FIGURE

Elements necessary for construction  
 1. Material  
 2. Time  
 3. Skill



INSTRUCTIONS

See all figures very carefully. Fold all dotted lines as  
 printed lines outside of fold (shown in figure 1).  
 Connect all members using the same holders and pins as shown.  
 Run a string through all dots and tie the ends.

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# Forrester's Third Symmetric Figure

*A mathematical object of small historical interest*

*by Stephen Drew, Improbable Research staff*

This drawing once provoked high drama in a school. We reproduce it, and tell its story, in the hope it will inspire students and teachers.

It was created some years ago by an editor of this journal who wishes to be unnamed, when he was about 14 years old. One day, staying home from school with a cold, he amused himself by using a pen, a ruler, and a single sheet of paper to make what is apparently a template to produce a cut-, fold-, and join-able three dimensional paper figure. The shapes on the paper are completely arbitrary. No thought was given to make any of the shapes relate in any way with any other.

The drawing being drawn, the student used a typewriter to add a title—"Forrester's Third Symmetric Figure"—and several lines of instructions, then fed the paper through a photocopy machine.

The next day, he presented a copy to one of his favorite teachers, explaining that it came from a book and "looked interesting."

Three days later, the student was walking down a corridor on the way from one class to another. His mathematics teacher, an intelligent, thoughtful, physically small, and invariably calm young woman, flew out a doorway, grabbed the student, and slammed him up against a wall.

"What did you do to that woman?!" she hissed in his face. "You tell me what you did to her!" The mathematics teacher went on to explain that the other teacher—the one who had been given a copy of Forrester's Third Symmetric Figure—had not slept in three days. The woman was spending all her time and thought, day and night, working obsessively at the puzzle, determined to finish it. Her work was going undone. She was becoming a wreck. "You go explain to her, nicely, what you did."

The student followed this instruction. His teacher stopped working on Forrester's Third Symmetric Figure. School life returned to normal. The puzzle remains, even now, unsolved.



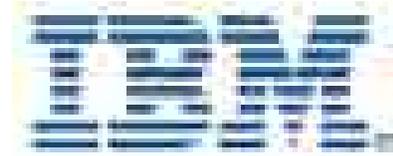
*A modern Xerox photocopy machine. A much earlier model was used to make the original reproduction of Forrester's Third Symmetric Figure. Photo: Xerox Corporation.*

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# Plucked from Obscurity: Restroom Reservations

*An inventive, yet under-publicized device*

*by Marina Tsipis, Improbable Research staff*

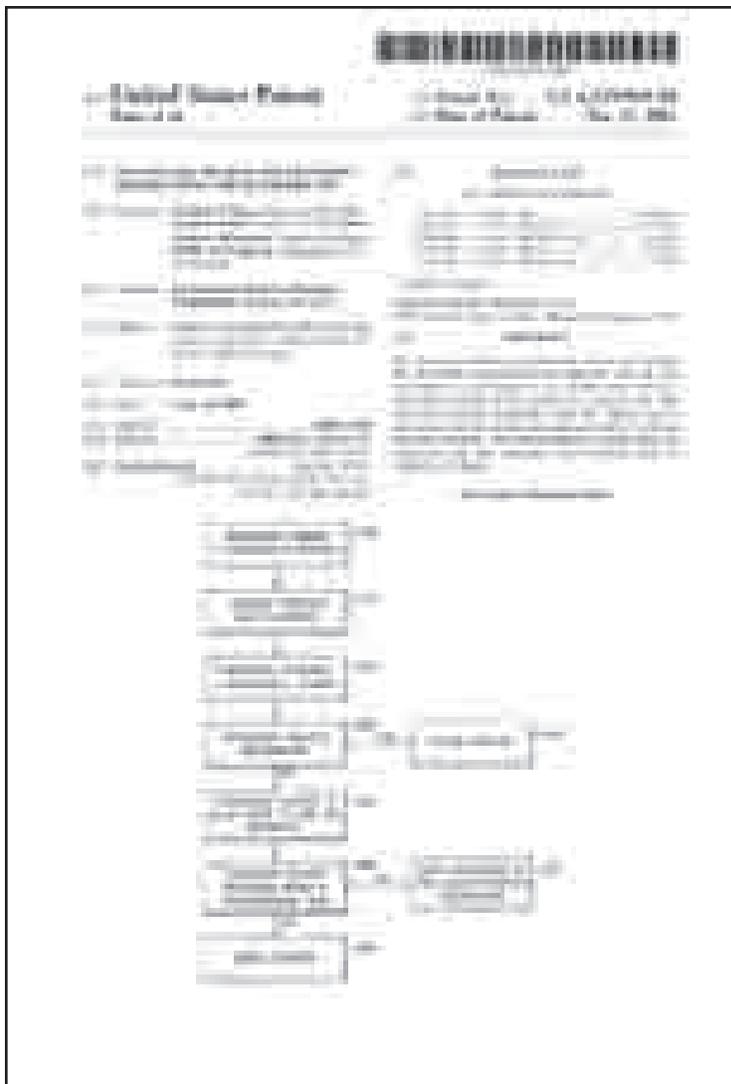


IBM Corporation patented a system for taking airborne restroom reservations. Several months later, IBM withdrew it. To the best of our understanding, the technology is now in the public domain.

U.S. patent #6329919—now the former U.S. patent #6329919—was granted on December 11, 2001. It bore this summary:

The present invention is an apparatus, system, and method for providing reservations for restroom use. In one embodiment, a passenger on an airplane may submit a reservation request to the system for restroom use. The reservation system determines when the request can be accommodated and notifies the passenger when a restroom becomes available. The system improves airline safety by minimizing the time passengers spent standing while an airplane is in flight.

The entire first page of the patent is reproduced here.



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# Icky Cutesy Research Review

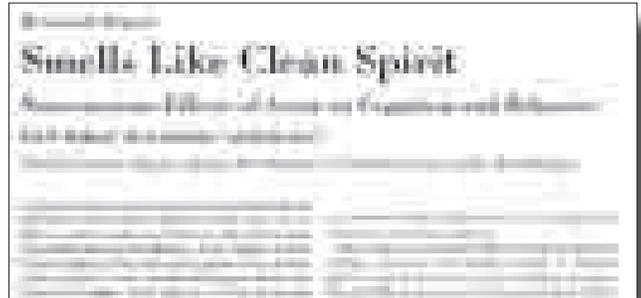
*Research reports that are icky and/or cutesy*

*Compiled by Alice Shirell Kaswell, Improbable Research staff*

## Cutesy

“Smells Like Clean Spirit: Nonconscious Effects of Scent on Cognition and Behavior,” Rob W. Holland, Merel Hendriks and Henk Aarts, *Psychological Science*, vol. 16, no. 9, September 2005, pp. 689–93. (Thanks to Mark Benecke for bringing this to our attention.) The authors explain that:

Three studies explored whether odor can influence people’s cognition and behavior without their being consciously aware of the influence... [The] mere exposure to the scent of all-purpose cleaner caused participants to keep their direct environment more clean during an eating task. Awareness checks showed that participants were unaware of this influence. The present studies reveal the nonconscious influence that olfactory cues can have on thinking and doing.



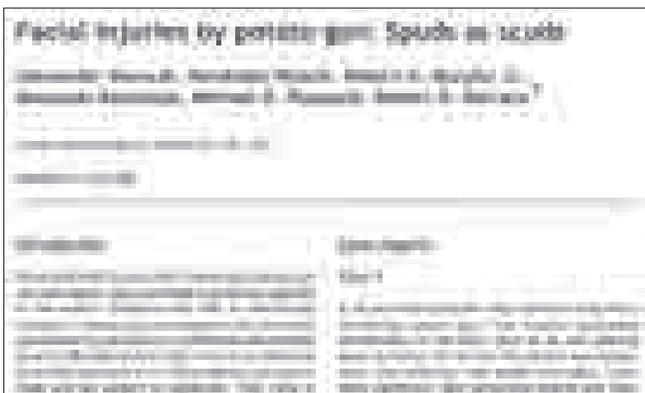
## Icky: Of Pirate Ships and Executions

“Rectal Impalement by Pirate Ship: A Case Report,” M. Bemelman and E.R. Hammacher, *Injury Extra*, vol. 36, no. 11, November 2005, pp. 508–10. The authors describe the case:

An 8-year-old boy presented to our Emergency Department with sudden abdominal pain after a fall in a bath. The child could or would not report what had happened... The parents mentioned that the child had insisted on being alone in the bathroom while he was playing with his pirate ship. After the fall the father had noticed that a piece of the mast was missing.

They also include a possibly pertinent historical fact:

Impalement dates from the middle ages when it was used as a mean of executing criminals by introducing a long, thin sharp pole through the anus..



## Cutesy Ickyness (Potato/Frog)

“Facial Injuries by Potato Gun: Spuds as Scuds,” Alexander Skavysh, Randolph Wojcik, Robert X. Murphy, Jr., Masayuki Kazahaya, Michael D. Pasquale and Robert D. Barraco, *Injury Extra*, vol. 38, no. 3, March 2007, pp. 81–3. The authors, who are at Lehigh Valley Hospital, Allentown, Pennsylvania, report that:

A 16-year-old Caucasian male placed a frog into a homemade potato gun. The weapon discharged accidentally in the boy’s face as he was peering down its barrel. On arrival, the patient was awake, alert, and oriented, with stable vital signs. There were significant right periorbital edema and moderate bloody nasal

discharge. A foreign object protruded between the right eyelids. Several pieces of frog tissue were carefully removed from the conjunctival space.

## Cutesy Ickyness (Green)

“It’s Difficult Being Green (as in Vomit),” Carl A Kuschel, Barbara Cormack and Phil Morreau, *British Medical Journal*, vol. 332, June 2006, pp. 1510–1. The authors are at the Auckland District Health Board, in New Zealand.

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# The Chemical and Physical Properties of Vampires in the Gaseous State

by

Scott Sandford, Santa Clara, California

Jason Dworkin, Arnold, Maryland

Max Bernstein, Mountain View, California

It is well known that vampires have a number of super-human powers (Melton 1994), although not all sources agree on the exact nature of these powers. This disagreement is presumably due, in large part, to a lack of careful *scientific* study of these creatures. According to early experts, one of the more interesting abilities of vampires is that they can turn into a mist/gas/vapor at will and move about in this gaseous state (Stoker 1897; Dean, Balderston et al. 1931; de Sangre 1952; Wallace et al. 1967). In the paper that follows we discuss a number of questions associated with the nature of vampires in the gaseous state, hereafter referred to as vampire(g),<sup>1</sup> and attempt to estimate some of the chemical and physical properties of vampires while in this state. While we make some progress in this regard, it is difficult to constrain many important properties of gas phase vampires on the basis of current information. In these cases we provide some discussion concerning the merits and difficulties associated with analytical techniques that might yield additional pertinent information.

## Volume Analysis

Video ethnographic studies of vampires, for example the pioneering work of Méliès and d'Alcy (1896) (Figure 1) imply that gas phase vampires have similar total dimensions, albeit with fuzzy edges, to solid-state vampires (Hart et al. 1992). However, quantitative analysis is difficult since vampires are reported to not show up in mirrors (Spence 1960), which adds considerable complication to any imaging system used for volumetric analysis. Due to the invisibility of vampires in mirrors, a complex system of lenses and filters, sans mirrors, must be used to record them on video or film. It is unfortunate that the nature of the filters and lenses used by documentarians like Dean and Balderston is not listed in the acknowledgements to their presentations. However, it is apparent that the filters used in early video ethnographic studies produced a monochromatic moving picture.

The use of mirror-free recording technology has improved in recent decades, as evidenced by the higher fidelity of the recordings of vampire. Despite all this, accurate measurements of volume have yet to be made, even by the most ambitious interviewers (Rice et al. 1994).



Figure 1 – A video ethnographic documentary of the formation of vampire(g) was first recorded in *Le Manoir du Diable* (Méliès and d'Alcy, 1896)

## The Mean Molecular Weight of Gas Phase Vampires

Due to the inherent nature of vampires, it is unlikely that they behave ideally (as a gas or otherwise). However, we have been unable to find the van der Waals, Virial, or Berthelot constants for vampire(g) in the literature (de Sangre, 1952), so we are forced to neglect their probably non-ideal nature in order to make an initial estimate of the mean molecular weight of vampire(g). Fortunately, strategic handbooks of vampire behavior and combat (Williams et al. 2003) do provide an approximate minimum vampire(g) volume. With all intervening air removed, a vampire(g) occupies the volume of a cube 2 feet on a side  $[(2\text{ft})^3 = 8\text{ft}^3 = 226.6 \text{ L of vampire}]$ . Thus,

$$PV = nRT$$

$$P = 1 \text{ atm}$$

$$V = 226.6 \text{ L}$$

$$R = 0.0821 \text{ (L atm)/(mol K)}$$

$$T = 285.3 \text{ K [53.8}^\circ\text{F]}^2 \text{ [that is, see note \#2]}$$



Figure 2 – *The face of vampirism. Even the 2.2 Å x-ray crystal structure of the 157 residue protein vampirase (Zhang et al. 1998) appears menacing.*

Substituting and solving for  $n$  yields the conclusion that one “cloud” of vampire(g) contains 9.675 moles of material. Until we have the opportunity to weigh a vampire, we assume that the mass of a vampire is 160 lbs (72.6 kg). This means that the average molecular weight for the material in a vampire is  $72,575\text{g}/9.675 \text{ moles} = 7,501 \text{ Da}$ . After a quick internet search,<sup>3</sup> we found the description of a 70 amino acid protein having a molecular weight of 7,501 Da. It is called Human Protein Q8WW94, also known as red cell acid phosphatase 1 (Figure 2). The association of a blood protein with vampirism is too unlikely to be a coincidence, thus it should be viewed as a validation of our calculations.

## Notes About Blood Protein

We find it particularly significant (and a bit creepy) that a red blood cell protein should

be so closely associated with vampires. It is likely that the activation of the gene that expresses this protein (perhaps by red cell acid phosphatase 1 excreted into the blood by saliva from, say, a bite to the neck) results in conversion of a mortal to a vampire. We strongly suggest that a test be developed to screen for the presence of red cell acid phosphatase 1 in the population as well as determining an antidote. This manuscript will serve as the beginning of our campaign with the Centers for Disease Control, the Food and Drug Administration, and the Department of Homeland Security to institute widespread screening of red cell acid phosphatase 1 in the general population. The security risks of vampires on commercial aircraft alone make the mandatory blood testing for the presence of red cell acid phosphatase 1 at airport security a necessity.

Furthermore, to reduce confusion, we also recommend that the protein red cell acid phosphatase 1 be renamed “vampirase.” (“Undeadease” may be more accurate depending on whether the phenotypic alteration caused by its expression is specific or general. Only further *in vivo* studies can determine the specificity; until then, we will conservatively refer to Q8WW94 as vampirase.)

Naturally, we anticipate that vampires(g) are not pure vampirase and likely contain a number of minor constituents. Thus, we are currently beginning a gas chromatography (GC) campaign to attempt to separate vampires into their constituent chemicals (Figure 3). It occurs to us that once vampire(g) is understood, tremendous advances in chemical and medical research can be achieved by feeding vampires intractable compounds of interest. The analyte be carried into the gas phase with the vaporization of the vampire, then both can be injected into the GC.

## Further Fundamentals

Since we now have determined that, at least to first order, our approximations of the gas-phase compositions of vampires are correct, there are a number of other fundamental constants that require the attention of science. Here we outline some of the outstanding questions regarding vampire(g) which modern science needs to address.<sup>4</sup>



Figure 3 – *A member of our research staff putting her life at risk to studying the properties of vampire(g). [She is smiling because we have told her she is handling something entirely different. It is unknown whether the vampire(g) enjoyed the experience.]*

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## The Solubility of Vampiric Gas in Liquids

It is well established that vampires cannot cross running water (Carroll 1991). The reasons for this are now clear: their Henry's law constant ( $k_H$ ) is such that they would quickly dissolve in agitated water, but not placid water. The determination of an accurate value of  $k_H$  with temperature is essential since it will determine if vampires can disguise themselves as carbonated beverages, or lurk dissolved in one's blood stream waiting for the right moment.

Conversely, it is also possible that when dissolved, vampires are rendered powerless. This would mean that the ideal prison for captured vampires is in a sealed bottle anchored to the bottom of the ocean and the best way to defeat a vampire cloud pursuing you is to deeply inhale it. Clearly, research of the highest caliber is required before this action can be recommended to the public. We have already left messages with the Occupational Safety & Health Administration (OSHA) to determine the hazards of vampire inhalation and they appear to have realized the magnitude of the issue, as they are now working on the problem with such diligence that they are unable to return our calls.

The associated question of conditions required for the production of vampire clathrate hydrates will not be addressed here, as it is clearly outside the scope of this manuscript.

## The Condensation of Vampiric Gas

Another fundamental question relates to the phase diagram of vampires(s,l,g). We have already noted that vampires apparently can sublime and condense at will. It is unclear whether this is done at constant pressure or temperature. Perhaps vampires' auto-vaporization is due to changes in body temperature. This is consistent with vampires' reported (see, for example, Galeen et al. 1922), but inconsistent (Daubeney et al. 1974; Fischer, Jeremias et al. 1987; Whedon et al. 1999; Whedon et al. 2000), pathological avoidance of sunlight and the total absence of reports of vampires' fevers.

Thus, it may be possible to defend oneself from a vampire(g) with dry ( $\text{CO}_2$ ) ice. Perhaps even more casually frigid conditions are adequate. Would a vampire freeze to your car windshield in the winter? Must they stay away from windows in their homes in the winter (the often reported ability of vampires to own large manors (e.g. Curtis, et al. 1967) is consistent with their ability to afford double-glazing to minimize this problem)? Might it be better to protect yourself with, say, a Popsicle, rather than a cross, if attacked by a vampire(g)? This is clearly an area that deserves active investigation.

Likewise, pressure may be a similarly important variable. Could atmospheric pressure be responsible for vampires being more often observed in the solid phase in stormy (low pressure) conditions, than in fair and sunny (high pressure) weather? This study is more significant in the event of deep-ocean storage of vampires, or the presence of vampires in low-pressure conditions normally hazardous for humans. If so, the National Aeronautics and Space Administration (NASA) must be prepared for possible vampire infestations in the permanently shadowed craters of the Moon.

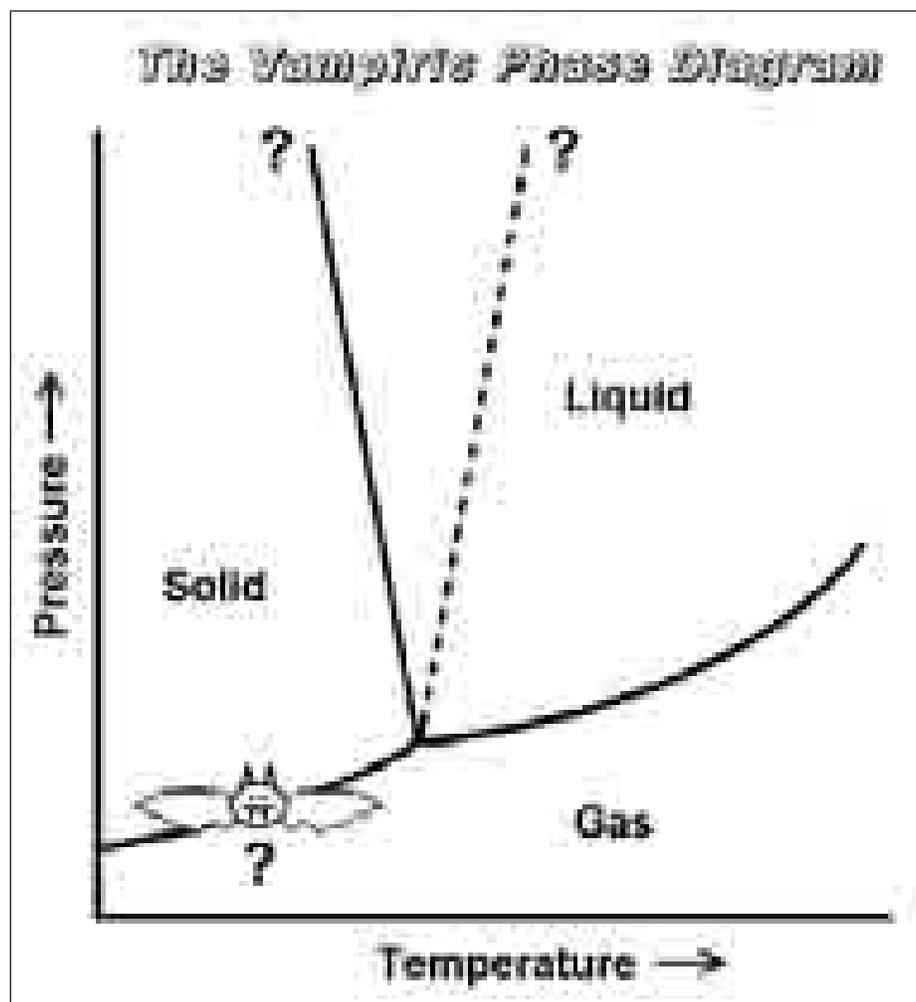
Of course, we have focused solely on the solid to gas transition of vampires. The solid-liquid and liquid-gas transitions have never been observed by credible sources. In fact, the vampire(l) phase may be impractical under experimentally obtainable conditions, and the phase diagram of vampires remains a matter of some mystery (Figure 4).

## The Absorption/Emission Spectra of Vampires

Beyond the physical chemistry of vampire(g) there are still remaining questions concerning the properties of vampire(s). One of the central questions is described here. Vampires are observed not to cast a shadow, and it is also well documented that they do not produce a reflection in mirrors (Stoker, 1897). The lack of a shadow indicates that vampires do not absorb or scatter any of the light impinging on them, or at least not in the *visible* portion of the spectrum. This would appear to preclude any form of traditional absorption spectroscopy at visible wavelengths. We would note, however, that there is essentially no information on whether vampires absorb light at other wavelengths. Thus, absorption spectroscopy remains a future possibility at non-visible (infrared, x-ray, etc.) wavelengths.

It should be noted that the fact that vampires do not cast visible shadows raises a dilemma. If vampires do not absorb or scatter visible light, i.e., they do not interact in any way with incident light, how is it that we can see them in both solid and gaseous state? The only possible solution is that vampires must *emit* light while in both their solid and gaseous forms. Given their propensity to lurk in shadows, it is likely that vampires fluoresce (or phosphoresce with fairly short triplet lifetimes to allow prompt intersystem crossing) as opposed to behaving like a blackbody. This suggests it may be worth considering various forms of emission spectroscopy. If ever there were something that vibrates and has a permanent dipole, it would be vampire(g)! Thus vibrational and rotational emission spectroscopy of vampires should be particularly fruitful once appropriate standards are measured in the laboratory. Since there are multiple reports of the possibility of vampires in space (e.g., Harrington et al. 1966; Wallace et al. 1967; Nowlan, Wyckoff et al., 1980;

Figure 4 – A potential phase diagram for the solid, gaseous, and (possibly) liquid states of vampires. If vampire(l) exists, it is not known if the solid-liquid boundary slopes upward to the left (as for  $H_2O$ ) or to the right (as for  $CO_2$ ). Since it is probable that evil floats (Axelrod and Antinozzi 2002), we suspect the solid boundary is more likely to be correct, i.e., a solid vampire would float in a tub of liquid vampire. Note that while vampires have been observed to transform between  $biped \leftrightarrow gas$  and  $biped \leftrightarrow bat$ , there is no record of a  $bat \leftrightarrow gas$  transformation. Nonetheless, we anticipate some sort of  $biped-bat-gas$  triple point may exist in the lower left of the diagram.



Bohus et al. 1995), this raises the intriguing possibility of, for example, remote sensing of any space-faring vampires in some of the multi-wavelength all-sky surveys currently being conducted by NASA.

Unfortunately, we anticipate that such measurements will ultimately be very difficult to make. Again, since vampires do not produce a reflection in mirrors, they will be invisible to many of the optical elements found in devices that measure spectra.<sup>5</sup> Indeed, the lack of a reflection in mirrors may be a single manifestation of a larger problem, as there is little to no data on the detectability of vampires by a host of optical components like beam splitters, gratings, polarization filters, etc.

## Summary

Of course, the issues we have discussed here represent only a partial list of the possible properties of gas phase vampires, and we have done more to illuminate our ignorance of vampires in this state than to quantify their properties. A host of additional questions easily come to mind. For example, are vampiric gases combustible? Can multiple vampires mix with each other in the gas state? What do gaseous vampires smell like? How does vampiric gas react with ozone? Could they cause ozone depletion? Are vampires in the gas phase subject to any environmental or OSHA regulations? What is the  $LD_{50}$ ?<sup>6</sup>

Clearly this is an area rich in future research possibilities. Having dug up these issues and exposed them to the light of day, it is our hope that the scientific community will now consider ways in which we can nail down the lid on these problems.

## Notes

1. Note that this effort only addresses a small portion of the questions we have in regards to vampires. For example, we know a vampire creates another vampire by biting a person, but is saliva-to-blood the only pathway for transmission?

---

What about blood-to-blood? Saliva-to-saliva? If a vampire spits in your eye or kisses you, do you catch vampirism? Suppose you share needles with a vampire? Have unprotected sex? Can a vampire slayer catch vampirism if he has an open sore on his hand while driving the wooden stake? What if a mosquito bites a vampire and then bites you? All practical questions! Another issue of interest: we know that vampires must respire. They take in blood, they grow hair, and they bleed. Do they urinate? What happens if a vampire pees in running water? On another vampire? What happens if you pee on a vampire? If water or food contaminated with vampire urine is consumed does one become a vampire? Oh, and one more: If a vampire gets athlete's foot, does the fungus become vampiric?

2. The average annual temperature of Transylvania from <http://www.brevardncchamber.org/> (we assume a castle in thermodynamic equilibrium with its surrounding environment).

3. See [http://expasy.org/uniprot/Q8WW94\\_HUMAN](http://expasy.org/uniprot/Q8WW94_HUMAN) and [http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene&cmd=Retrieve&dopt=full\\_report&list\\_uids=52](http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene&cmd=Retrieve&dopt=full_report&list_uids=52).

4. Thereby placing a stake with our names in the heart of these issues, so to speak.

5. A vampire's inability to produce a reflection in a mirror has some interesting consequences. For example, a vampire could apparently be spotted from afar with a typical seaman's spyglass, but would be invisible to the world's most powerful Newtonian telescope.

6. Short for "Lethal Dose, 50%," i.e. the amount needed to kill half of a tested population.

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*At the 2006 Ig Nobel Prize Ceremony, Miss Sweetie Poo encourages Ornithology Prize winner Dr. Ivan Schwab to finish up his acceptance speech.  
Photo: David Holzman..*

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# Finger, Tingle and Mohn

*Names to notice and remember*

*Compiled by Nan Swift, Improbable Research staff*

For some research teams, the individuals become familiar names because their research attracts admiration. Watson and Crick—James Watson and Francis Crick—for example, hit the big time after they wrote a paper describing the structure of the DNA molecule. Generations noticed the report, and then remembered the names.

Other teams are composed, at least partly, of names that are already familiar. Such teams can always hope the public will notice the individual names, admire the individuals, and maybe then examine the work.

One team that's poised for fame is Tingle and Finger and Mohn. Their research elucidates the joys, benefits, and possible incidence of sexual abstinence. Here are two of their best-loved studies.

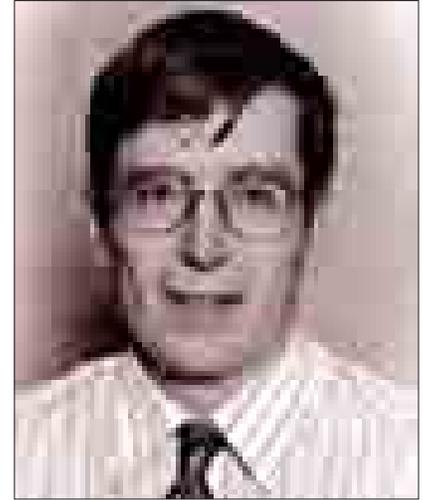
## Tingle and Finger and Mohn

“An Analysis of the Causes of the Decline in Non-marital Birth and Pregnancy Rates for Teens from 1991 to 1995,” Joanna K. Mohn, Lynne R. Tingle and Reginald Finger, *Adolescent and Family Health*, vol. 3, no. 1, 2003, pp. 39-47.

## Finger and Mohn, with Mann

“Association of Virginity at Age 18 with Educational, Economic, Social, and Health Outcomes in Middle Adulthood,” Reginald Finger, Tonya Thelen, John T. Vessey, Joanna K. Mohn and Joshua R. Mann, *Adolescent and Family Health*, vol. 3, no. 4, 2005, pp. 164-70.

*(Thanks to Evan Mayo-Wilson and Kristen Underhill for bringing this team and its work this to our attention.)*



*Dr. Finger is a member of the U.S. Advisory Committee on Immunization Practices. He and his colleagues are professionally fascinated by sexual intercourse. Dr. Tingle, not pictured here, was affiliated with the Department of Educational Research Methodology at the University of North Carolina at Greensboro. Dr. Mohn was affiliated with the New Jersey Physicians Resource Council. Finger painting by Nan Swift, Annals of Improbable Research.*

## 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:

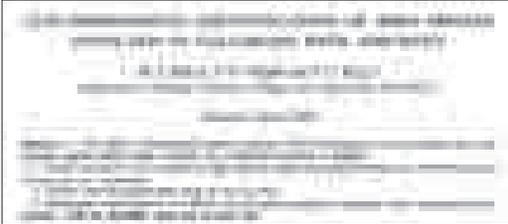
- Is this scientist right -- and what does “right” mean, anyway?
- Can you think of even one different explanation that works as well or better?
- Did the test really, really, truly, unquestionably, completely test what the author thought he was testing?
- Is the scientist ruthlessly honest with himself 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.*

# May We Recommend

Items that merit a trip to the library

compiled by Stephen Drew, Improbable Research staff



## Analyzing Bits of Data

“Electrophoretic Identification of Bird Species Involved in Collisions With Aircraft,” H. J. Doran, T. F. Cross and T. C. Kelly, *Comparative Biochemistry and Physiology Part B*, vol. 97, no. 1, 1990, pp. 171–5.

## Exploding Toilet: Assessment

“The Exploding Toilet and Other Emergency Room Folklore,” Robert D. Slay, *Journal of Emergency Medicine*, vol. 4, no. 5, 1986, pp. 411–4.

## Time in a Bowl

“Evaluation of Numerical Algorithms for the Instrumental Measurement of Bowl-life and Changes in Texture Over Time for Ready-to-Eat Breakfast Cereals,” C.M. Gregson and T.-C. Lee, *Journal of Sensory Studies*, vol. 33, no. 6, April 2002, pp. 505–28.

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

### HMO-NO News

Health care advice to pass on to your patients



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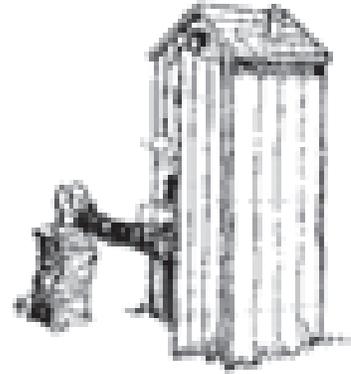
 The very final word in health care

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# Boys Will Be Boys

*Research by and for adolescent males of all ages and sexes*

*compiled by Katherine Lee, Improbable Research staff*



## Porn Up, Rape Down

“Porn Up, Rape Down,” Anthony D’Amato, Northwestern Public Law Research Paper No. 913013, June 23, 2006. The author, who is at Northwestern University School of Law in Chicago, Illinois, explains that:

The incidence of rape in the United States has declined 85% in the past 25 years while access to pornography has become freely available to teenagers and adults. The Nixon and Reagan Commissions tried to show that exposure to pornographic materials produced social violence. The reverse may be true: that pornography has reduced social violence.

## “Pond Poop” From Propofol

“‘Pond Poop’ From Propofol,” Anthony W. O’Regan and Martin Joyce-Brady, *Intensive Care Medicine*, vol. 29, 2003, p. 2106. (*Thanks to Tom Roberts for bringing this to our attention.*) The authors, who are at Boston University School of Medicine, Boston, Massachusetts, report that:

Chloruria from propofol infusion is often encountered in the Intensive Care Unit patient.... Shortly after admission, the family queried the physicians about [our] patient’s stool, which had undergone a dramatic change in color from dark brown to bright green. The similarity to a summer bloom of algae in a pond was promptly noted and the stool aptly dubbed “pond poop”.... Brown stool color returned within 48 hours of propofol withdrawal.



## Dog’s Paradox

“The Erect Dog Penis: A Paradox of Flexible Rigidity,” J. Grandage, *Veterinary Record*, vol. 91, no. 6, August 1972, pp. 141–7.

## Monkeys: How Touching

“Sperm Competition and the Function of Masturbation in Japanese Macaques (*Macaca fuscata*),” Ruth Thomsen, PhD thesis, University of Munich, October 2000. (*Thanks to Joachim Dagg for bringing this to our attention.*) The author goes into much detail about the various ways to make macaques ejaculate, including the pros and cons of artificial vaginas, electro-ejaculation, and semen collection after auto-masturbation, as well as the highly recommended HHE (Human Hand Ejaculation) method. For more description, check out the thesis at: [http://edoc.ub.uni-muenchen.de/archive/00000105/01/Thomsen\\_Ruth.pdf](http://edoc.ub.uni-muenchen.de/archive/00000105/01/Thomsen_Ruth.pdf). Highlights from the article include:

[Monkeys] were fed peanuts and fruits throughout the procedure [Human Hand Ejaculation]. Ejaculation was stimulated by massaging the genital region with the human hand. The procedure was performed for not longer than 20 minutes and if a male did not ejaculate during this time, the experiment was stopped without the final reward of fresh fruit.

## Greek Usage

“Dover, Foucault and Greek Homosexuality: Penetration and The Truth of Sex. The Use Of Greeks,” James Davidson, *Past and Present*, vol. 170, no. 1, February 2001, pp. 3–51. The author is at the University of Warwick, UK. (*Thanks to Ed Wetenschap for bringing this to our attention.*)



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## Hot Laptop Lap Top

“Increase in Scrotal Temperature in Laptop Computer Users,” Yefim Sheynkin, Michael Jung Peter Yoo, David Schulsinger and Eugene Komaroff, *Human Reproduction*, vol. 20, no. 2, February 2005, pp. 452–5. (Thanks to Kindra Walker and numerous others for bringing this to our attention.) The authors report that:

Working laptop computers in a laptop position causes significant scrotal temperature elevation as a result of heat exposure and posture-related effects.

## Hung in Hypergravity

“Hypergravity Does Not Affect Testicular Function,” D.N.R. Veeramachaneni, D.R. Deaver and R.P. Amann, *Aviation Space and Environmental Medicine*, vol. 69, no. 6, June 1998, p. A49. (Thanks to Len. Finegold for bringing this to our attention.)

## How to Harass

*Sexual Harassment: A Guide for Faculty, Staff and Students at Drexel University*, January 2001.



## High and Low Women

“Evaluations of Sexy Women in Low- and High-Status Jobs,” Peter Glick, Sadie Larsen, Cathryn Johnson and Heather Branstiter, *Psychology of Women Quarterly*, vol. 29, no. 4, December 2005, pp. 389–95. (Thanks to Martin Gardiner for bringing this to our attention.)

We hypothesized that women who dress in a sexy versus business-like manner evoke negative emotions and perceptions of lesser competence if employed in high- (but not low-) status jobs... [Our] findings suggest that a sexy self-presentation harms women in high-, but not low-, status jobs.

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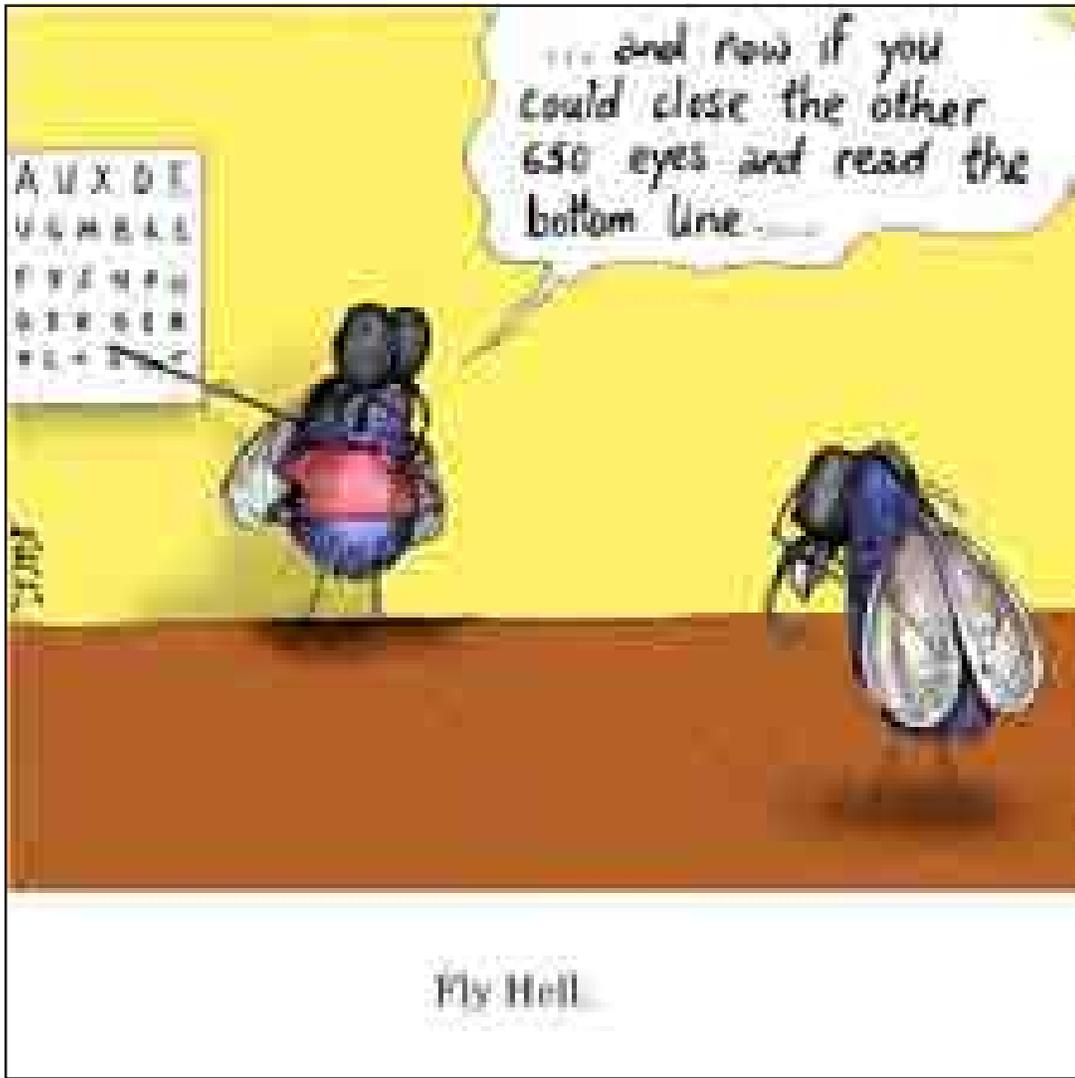
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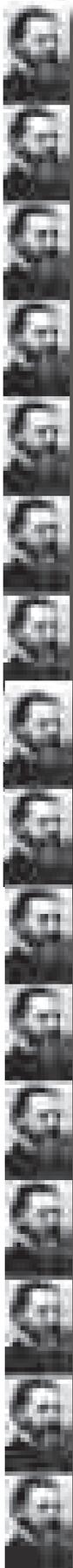
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