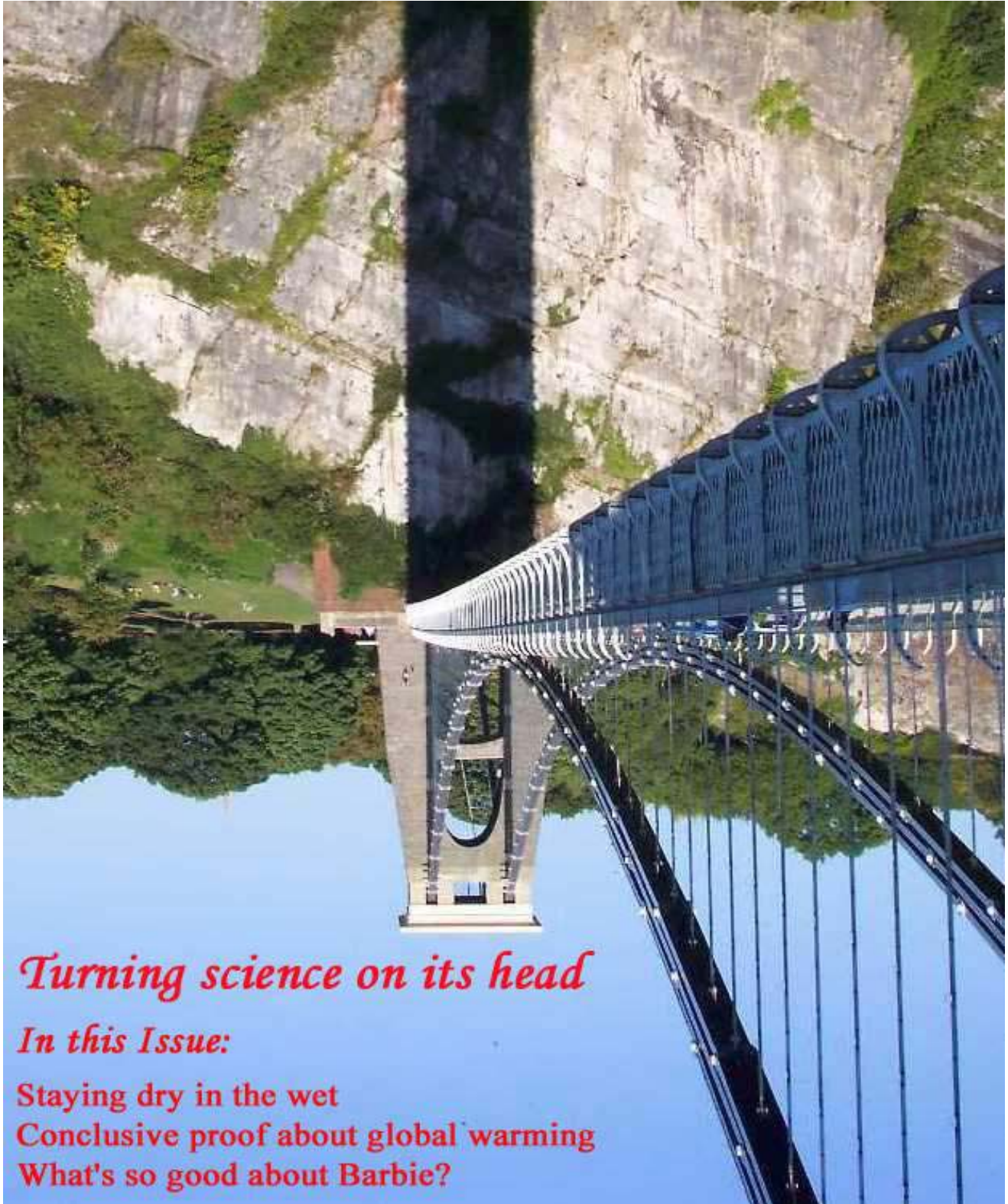


Null Hypothesis

The Journal of Unlikely Science

£1.00



Turning science on its head

In this Issue:

Staying dry in the wet

Conclusive proof about global warming

What's so good about Barbie?

Volume 1, Issue 1 – October 2004

Contents

Issue 1 - October 2004

Null Hypothesis is a new journal, which presents satirical and non-satirical articles from the world of science and academia. Published monthly, it aims to unite departments, professors, students and minds.

Main Articles

- Staying dry in the damp** 2
by J. Ruyter & M. Olano
How to avoid getting soaked when you're caught in the rain.
- Global warming** 8
by B. Wiytarmee
Shocking new evidence about global warming: It's here, it's real, and it's been around for yonks.
- Driving ewe crazy** 14
by S. Solomon
Behaviour of car drivers and sheep in the Outer Hebrides.
- Do too many cooks spoil the broth?** 22
by D. G. Hall
Cooks, broth, kitchens, judges, its all happening in the pursuit of science.

Other Articles

- Fifteen millimetres of fame*** 6
How many people work on your project? Surely not as many as this one!
- Yin and Yang*** 10
Not just a pretty symbol, here we find the perfect balance for a publication...
- Hamster review*** 12
They are clever things you know.
- Shopaholics anonymous rejoice*** 12
Fresh hope for those who can't stop spending cash.
- Peculiar units*** 21
"I'll have a bit of your butt thanks barman" and other quantitative oddities...

Regular Sections

Paper of the month* 5

Bizarre papers from genuine research articles. In this issue: Barbie - Supermodel or just super?

Something I read in a book...* 11

What exactly did you take home from reading that book? Here, we find out.

'Thing' of the month* 13

The history and development of everyday items. This month: Almost everything you wanted to know about lipstick.

Birthdays and Quotes 17

This month's birthday boys and girls, and quotes from the famous and not so famous.

Timewasting and Statistics 20

How to waste time on the Web, and statistics to amaze your friends.

Discovery corner 25

This month's amazing new find!

I really wish I hadn't...* 25

Big regrets from the science world.

Puzzles and Miscellaneous 28

Brain teasers and other fabulous wastes of time.

News and Views

H1 - The Alternative* 18

Real science, does exactly as it says in the journal...

Prof's page 27

Your views aired, your ideas on paper, your questions answered...

Cover Picture

Front:

Bristol's famous Clifton suspension bridge, built by Brunel in 1836, completed in 1864, and has long since been the scene of suicides, protests and traffic queues.

Back:

Colin the kitten, half Siamese - half Burmese, and all round bundle of mischief. Colin is 14 weeks old in this picture, and resides in Cornwall.

Staying dry in the damp

by **Dr. Jeffry Ruyter** and **Dr. Madelene Olano**

Westin University, Pfingsten Road, Northbrook, Chicago, IL, 60062, USA.

Introduction

You're walking, it starts to rain, you have no umbrella and you have to go to work... here comes the eternal dilemma - do you keep walking briskly and get wet? Or do you run and get to work quicker, but risk getting wetter in the process? Here, in this important new paper, we analyse both so you don't have to make that agonising choice next time.

Methods

Our investigators wore light grey coats and light grey hats, both of which showed the rain clearly; these were weighed to obtain a dry weight. On reaching the destination, they were again weighed to obtain wet-weight, and thus calculate total rain wetness.

At the onset of rain, volunteers walked, jogged and ran the 1km to the destination, where they were re-weighed. Different degrees of rainfall were noted and measured, to see whether rainfall was typical of the average summer during the survey period, a method employed by Cook *et al.* (2004) in a similar study.

Rain is classified in a number of ways, but a combined MET office classification for rain is commonly used: Spitting, slight drizzle (up to 0.2mm per hour), moderate drizzle, thick drizzle, light rain (> 0.8mm per hour), moderate rain, heavy rain (> 30mm per hour), very heavy rain, torrential rain.

Results

The rain in Spain may fall mainly on the plain (Shaw 1964), but in this study, it fell mainly on those walking. All results are shown in Figure 1. Both walking in heavy/torrential rain, and running in torrential rain caused severe soakings. In light rain, jogging produced least overall soaking, and likewise for running in drizzle. Rain angle was not measured, but may have influenced the level of soaking. Hats became wetter than coats in lighter rain, but at faster speeds and in heavier conditions, coats collected more dampness.

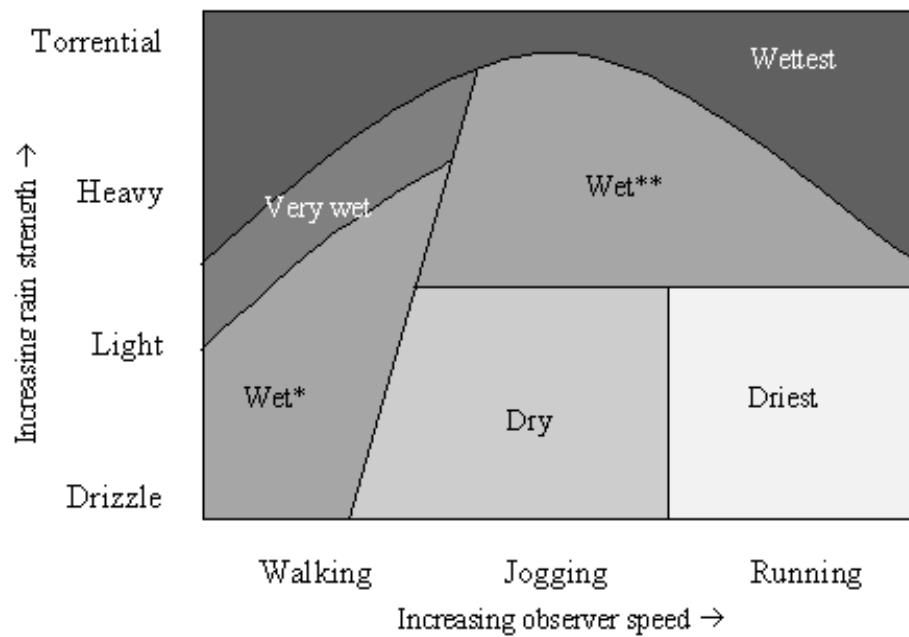


Figure 1. Interaction of rainfall strength and observer speed
(* Hat wetter than coat, ** Coat wetter than hat)

Discussion

One volunteer took a taxi to the destination and remained 100% dry - a tactic noted for its success in this study, although not contributing much to its overall discussion. Another volunteer refused to leave the house, and also remained dry. Of those that did not cheat, jogging created the least overall dampness on arrival at the destination, and those clothes were dried very quickly (Roberts 2000). No wet weather conditions produced a glorious feeling (Kelly 1952).

Running in torrential rain was unproductive, as spray kicked up from shoes increased the water coverage on the coat. Walking in torrential rain was not recommended, as the coat quickly became waterlogged, further slowing the helpless victim. Jogging was therefore best, as it decreased exposure time, and had less spray from shoes. In light rain and drizzle, running was best for dryness, as exposure time was reduced, while running in heavy rain, however, may decrease the life of the clothes, as tested by Robertson *et al.* (1946).

Rain and running angle influences which item of clothing gets wettest, and evidence (backed up by deMiranda & Cole 1996) suggests that if you wear a large waterproof hat, then walk slowly. Running in rain at night is another aspect that may require further study. Schnell *et al.* (2003) outlined details of

road conditions in different weathers that should be taken into account during such exercises. However, the best advice may still be that of the MET office: Don't go out unless your journey is essential, and if you still have to go out, take a brolly...

References

- Cook, C., Reason, C.J.C. and Hewitson, B.C. (2004). Wet and dry spells within particularly wet and dry summers in the South African summer rainfall region. *Climate Research* **26**, 17-31.
- deMiranda, E.C. and Cole, R.S. (1996). Statistical analysis of angle of arrival in rain conditions on a 4.1km, 0.83mu m line of sight urban link. *Electronics Letters* **32**, 476-477.
- Kelly, G. (1952). *Singin' in the rain*. MGM studios.
- Roberts, J. (2000). 'Drying clothes'. *Antigonish Review* **121**, 52.
- Robertson, R.M., Lobisser, R.J. and Stein, R.E. (1946). High speed rain abrasion of glass cloth laminates. *Industrial and Engineering Chemistry* **38**, 590-591.
- Schnell, T., Aktan, F. and Lee, Y.C. (2003). Nighttime visibility and retroreflectance of pavement markings in dry, wet, and rainy conditions. *Transportation Research Record* **1824**, 144-155.
- Shaw, G.B. (1916). *Pygmalion*. Penguin Books.



The effect of snow on human dampness was not investigated in this study

Paper of the month

Why Barbie is perceived as beautiful

Magro, Albert. M. (1997).

Fairmont State College, School of Science and Mathematics, West Virginia, USA.

Perceptual and Motor Skills **85**, 363-374.

Summary:

The reason that Barbie has been so popular and successful is because she is seen to be attractive. But why is she?

Data from the fossil record shows how the human body has changed and evolved. Some of these changes are physical traits that are no longer found in humans (they are primitive) and some are physical traits that have become increasingly more prevalent (derived). Barbie, it seems, has body proportions that highlight the derived features, so they become exaggerated.

When humans look at the appearance of the body, derived traits are seen to be attractive, while primitive traits are seen to be unattractive. In this study, drawings and photographs were used to investigate reactions of 495 subjects to both the primitive and derived traits, and they were all asked to select the shape or proportion that they found to be most attractive. There was significant agreement that derived physical traits were perceived as more eye-catching than primitive ones.

The Barbie doll, therefore, illustrates the bodily elements that humans find most beautiful, and highlights our derived evolutionary traits. This may explain why Barbie is thought to be attractive.



Barbie, seen here modelling her 'rose' outfit

Some Barbie Trivia:

Barbie (or Barbara Millicent Roberts) is 45, and hails from Willows, Wisconsin. She has five sisters (Skipper, Tutti, Stacie, Kelly and Krissy), and a brother (Todd), and has had over 80 careers and 43 pets. The best selling Barbie doll ever was "totally hair Barbie", with hair from her head to her toes. She originally cost \$3, and has a 39-18-33 figure.

Fifteen millimetres of fame

It is comforting to think that, once one of your papers has been published, you have guaranteed yourself a little piece of history. Even if your publication list extends to just one paper, your name will live on forever in the annals of science. Such is the case for G. Schulte-Herbrueggen, whose lasting memory was assured in Topol *et al.* (1993); along with 974 co-authors.

Being 819th author, we feel it likely that even a name as fine as Schulte-Herbrueggen may be overlooked, so in recognition of all those authors further down the pecking order, here is the full list of investigators who collaborated on the GUSTO study led by Dr. Eric Topol, at the Department of Cardiology, Cleveland, USA.

Topol, E. *et al.* (1993). An international randomized trial comparing four thrombolytic strategies for acute myocardial infarction. *The New England Journal of Medicine* **329**, 673-682.

A medical research paper that has 100 times as many authors as pages!!! The authors are:

E. Topol (Study Chairman), R. Califf, F. Van de Werf, P.W. Armstrong, P. Aylward, G. Barbash, E. Bates, A. Betriu, J.P. Boissel, J. Chesebro, J. Col, D. de Bono, J. Gore, A. Guerri, J. Hampton, J. Hirsh, D. Holmes, J. Horgan, N. Kleiman, V. Marder, D. Morris, M. Ohman, M. Pfisterer, A. Ross, W. Rutsch, Z. Sadowski, M. Simoons, A. Vahanian, W.D. Weaver, H. White, and R. Wilcox, R. Califf, G. Granger, K. Lee, K. Pieper, L. Woodlief, S. Karnash, J. Melton, J. Snapp, L. Berdan, K. Davis, B. Hensley, C. Huffman, E. Kline-Rogers, J. Lee, I. Moffie, D. Smith, D. Christopher, M. Dorsey, C. Blackmon,

B. Moss, J. Shavendar, R. Califf, C. Granger, B. Harrington, B. Hillegass, M. Ohman, E. Topol, V. Stosik, D. Shyne, A. Thomas, D. Passmore, R. Wagner, D. Debowey, B. Keogh, P. Brickenden, F. Van de Werf, I. Anastassiou, R. Brower, A. de Clerck, E. Lesaffre, A. Luyten, A. Meuris, P. Tenaerts, S. Van Dessel, K. Verberckmoes, J. Simes, E. Belles, S. Cho, J. Fabri, K. Farac, R. McCredie, J. Sowden, E. Braunwald, M. Bertrand, M. Cheitlin, A. De Maria, D. De Mets, L. Fisher, P. Sleight, L. Walters, N. Anderson, G. Barbash, J. Gore, P. Koudstaal, W. Longstreth, M. Simoons, M. Sloan, R. Tadmor, W.D. Weaver, H. White.

G. Macina, K. Salzsieder, C. Lambrew, R. Bishop, G. Gacioch, N. Jamal, J. Alexander, J. Layden, R. Grodman, J. DeSantis, H. Zarren, J. Cirbus, J. Morrison, D. Urbach, M. Capeless, E. Davison, G. MacDonald, B. Zola, G. Ryan, J. DiCola, J. Babb, W. Andrias, A. Binder, R. Robbins, P. Zwerner, M. Weinberg, J. Gore, C. Levick, A. Macina, R. Wallach, D. Miller, R. Kohn, A. Merliss, M. Falkoff, A. Sadaniantz, J. Greenberg, R. Parkes, W.H. Gaasch, S. Zeldis, L. Pinsky, M. Bakerman, B. Gaffney, M. Kaulbach, S. Labib, M. Therrien, A. Riba,

J. Hanna, N. Brandon, S. Jacoby, H. Cabin, R. Dewey, D. Miller, J. Moses, A. Khan, V. LaDelia, R. Klare, H. Seidenstein, D. Losordo,

M. Kukin, J. Strain, A. Rosenfeld, D. McCord, P. Bruno, P. Reiter, S. Blatt, A. Fass, A. Thomas, R. Shulman, B. Lindenberg, M. Bleiberg, J. Holbrook, M. Dharawat, J. Tumolo, S. Sheikh, G. Farrish, N. Niles, J. George, A. Sgalia, D. Parikh, E. Funk, C. Manning, E. Kosinski, R. Vince, H. Sanghvi, L. Sherman, J. Hsueh, F. Zugibe, L. Pisaniello, M. Sands, E. Pollak, Jr., E. Kehoe, M. Abdel- Azim, B. Platt, J. McBride, P. Goodfield, M. Frey, P. Micale, E. Alsbrook, G. Miller, W. Maddox,

R. Iwaoka, H. Morse, G. Pilcher, N. Trask, III, R. Jesse, M. Collins, J. Schrank, L. Howard, K. Sheikh, J. Puma, R. Califf, J. Barnes, B. Hearon, J. Dorchak, J. Kenerson, M. Johnson, J. Pasteriza, A. Magee, R. Schneider, C. Ashby, J. Nobel, M. Goldberg, J. Morris, S. Mester, W. Stuck, A. Rosenblat, G. Thomas, J. Smith, W. Ellison, W. Levy, M. Glover, D. Eich, P. Popper, K. Gibbs, R. Seagle, G. Lane, K. Popio, A. Blaker, A. Tse, D. McMillan, R. Vicari, A. Whitaker, D. Mokotoff, S. Roark, D. Ike, A. Ghahramani, C. Davenport, J. Hoekstra, D. Givens,

R. Dunkelberg, R. Schneider, M. Clark, F. Lenz, M. Whisenant, M. Lopez, S. Schnider, J. Strickland, R. Palaniyandi, R. Stack, A. Bartel, T. Long, E. Hawkins, R. Everhart, R. Goulah, R. Lewis, R. Thigpen, S. West, J. Anderson, M. Hajisheik, D. Privette, R. Josephson, R. Schumacher, K. Mohan, G. Litman, J. Formolo, D. Besley, A. Klaus, L. Calli, Jr., W. Duvernoy, J. Heinsimer, J. Schaeffer, R. Miller, R. Stomel, E. Papasifakis, M. Zande, J. Jacobs, J. Kazmierski, K. Holland, F. Griff, W. Whitaker, S. Weinberg, J. VanGilder, J. Rogers, D. Dageford, P. Bacidore, M. Rubin, R. Reynolds, A. Razavi, J. Hodgson,

R. Millsaps, F. Wefald, T. Fraker, Jr., R. Vanderlaan, K. Scully, B. Morrice, J. Forchetti, R. Kurtz, W. Meengs, A. Weizenberg, M. Tejura, E. Bates, P. Fleisher, B. Perry, M. Kreindel, D. Kereiakes, T. Vrobel, M. James, E. Basse, P. Andres, B. Lew, S. Zampani, M. Gheorghiadie, C. Milford, W. Wilson, S. Bhatia, T. Doyle, S. Traughber, W. Polinski, S. Brownstein, E. Topol, M. Meyer, T. Heft, K. Kuppler, B. Schilt, V. Mistry, D. Booth, R. Bahr, A. Doorey, T. Krisanda, J. Smith, R. Biern, J. Gregory, N. Strahan, A. Bramowitz, R. Gordon, J. Ibarra, A. Ross, S. Worley, W. Berkowitz, R. Fields, M. Efron, K. Lindgren, E. Roseff,

M. Avington, S. Sharma, J. Banas, W. Beckwith, V. Krishnaswami, T. Boyek, H. Dale, J. Zimmerman, J. Burks, L. Gehl, A. Meshkov, R. Rubinstein, G. Groman, J. Ellis, IV, A. Popkave, D. Ferri, M. Santer, Jr., L. Konecke, K. Singal, J. Wertheimer, H. Selinger, M. Borsch, H. Starr, T. Parris, M. Pecora, J. Patankar, W. Noble, G. Grossman, B. Clemson, D. Rosing, L. Denlinger, L. Adler, H. Goldschmidt, J. O'Toole, D. McCormick, J. Granato, C. Naganna, E. Gerber, T. Little,

R. Angeli, W. Markson, O. Randall, M. Kesselbrenner, K. Olsen, W. Esper, K. Hawthorne, M. Padnick, H. White, Jr., M. Stern, T. Lombardo, J. Svinarich, P. Browne, J. Saini, N. Laufer, S. Ung, D. Rigby, J. Perry, A. Mattern, N. Shadoff, V. Aquino, A. Newton, L. Lancaster, D. Gonzalez, G. Symkoviak, W. Falcone, N. Israel, R. Scott, G. Hui, J. Boerner, K. Nademane, J. Sbarbaro, M. Kraus, H. Lee, D. Sellers, B. Owens, S. Harris, D. Brown, M. Solovay, A. Damien,

S. Woolbert, B. Call, M. McGuire, T. Glatte, R. Davis, E. Terry, C. Castle, R. Oliveros, J. Laser, C. Haws, R. Park, F. Cecena, C. Dahl, S. Gollub, R. Heuser, G. Peese, M. Sanz, C. Brooks, C. Schechter, J. Gladden, R. Bond, M. Crawford, R. Loge, J. Moreland, L. Faitelson, W. Lewis, R. Dattilo, M. Carbajal, R. Tabbaa, G. Rodgers, J. Morgan, M. Traylor, C. Unrein, R. Crossno, C. Wilkins, G. Hanovich, W. Hession, B. Abramowitz, J. Thompson, S. Kopecky, L. Cook, J. Drozda, L. Swenson, P. Schmidt, A. Mooss, B. Anderson, D. Goldsteen, F. Ferrigni, A. Edin, C. Santolin, J. Alexander, K. Fullin,

J. McCriskin, G. Taylor, D. Shuster, L. Solberg, R. Menning, L. Abrahams, J. Epplin, S. Benton, B. Handler, N. Streitmatter, M. Saddin, W. Lam, I. Silverman, R. Dinter, W. Frank, D. Zwicke, D. Pfefferkorn,

T. Matzura, D. Meyers, S. Bloom, C. Jones, P. Quandt, M. Wheeler, C. Monroe, D. Jenny, H. Coleman, R. Holm, L. Shelhamer, Jr., G. Grix, P. Leutmer, R. Harner, C. Koeppl, R. Yawn, P. Anantachai, K. Jaeger, B. Patel, M. Cinquegrani, T. Dynes, C. Campanella, D. Larson, S. Gill, C. Thompson, K. Kavanaugh, N. Harb, D. Dixon, J. Carr, J. Shanes, V. Miscia, A. Hsieh, R. Pensinger, P. Lightfoot, R. Swenson, P. Sarkaria, R. Acheate, J. Rudoff, R. Anschuetz, E. Lapin, R. Spiegel, P. Lai, B. Strunk, W. Rowe, R. Finegan, B. Gross, J. Chappell, T. Berndt,

B. Titus, R. Oikawa, R. Ashmore, D. Bayne, G. Wesley, E. Quinn, K. Jutzy, G. Fehrenbacher, P. Kotha, P. Phillips, K. Ryman, J. Holmes, H. Kwee, D. Cislawski, R. Bream, T. Elder, III, H. Olson, R. Trenouth, C. Wolfe, S. Raskin, J. Comazzi, K. Stokke, M. Nallasivan, D. Hogle, B. Kennelly, E. Wroblewski, J. Altamirano, E. Chesne, A. Choe, A. Brodersen, S. Sherman, E. Pickering, J. Kalbfleisch, C. Williams, J. Dedonis, M. Silverman, M. Geer, K. Wright, D. Williams, W. Guest, R. Sinyard, Jr., Z. Baber, S. Howell, III, R. Ingram, D. Morris, W. Beeson,

R. Schlant, V. McLaughlin, H. Hanley, G. Olson, P. Gainey, D. Shonkoff, Y. Ong, G. Phillips, F. Kushner, C. White, J. Hoopes, P. Breaux, J. Lam, M. Honan, R. Hill, M. Certain, H. Ba'abaki, T. Atha, H. Butler, L. Battey, J. Scott, G. Cash, P. Mullen, R. Wrenn, A. DeLeon, U. Thadani, L. Price, E. Magiros, P. Subramaniam, H. Hamerman, D. David, S. Sklerovsky, G. Barbash, B. Peled, S. Laniado, N. Rogin, S. Schlezinger, I. Zehavi, A. Caspi, E. Barash, Y. Kishon,

A. Keren, A. Palant, E. Aviner, T. Weis, L. Reisin, D. Zivony, L. Rudnik, B. Luis, A. Marmur, M. Gotesman, E. Gelvan, S. Roth, D. Roth, M. Traboulsi, M. Henderson, K. Finnie, J. Burton, R. Trifts, J. McDowell, P. Klinke, R. Lesoway, M. Senaratne, B. Lubelsky, E. Goode, M. Cheung, P. Bogaty, B. Burke, C. Morgan, M. Turek, A. Hess, C. Lefkowitz, J. Charles, P. Armstrong, A. Fung, G. Kuruvilla, D. Langleben, B. Hryciyshyn, C. Kells, R. Delarochelliere, V. Sluzar, K. Kwok, M. Goddard, J. Fulop, J. Brophy, A. Zawadowski, B. Sahay,

F. Ervin, C. Thompson, A. Abdulla, K. Boroomand, C. McMillan, P. Carter, P. Laramee, R. Hathaway, M. O'Reilly, S. Vizel, D. Hilton, G. Jablonsky, P. Bolduc, L. Simard, N. Ranganathan, D. Gould, L. Bate, D. Cameron, B. Mackenzie, P. Greenwood, D. Gossard, J. Blakely, J. Morch, R. Mildenerberger, N. Racine, H. Baillie, A.E.R. Arnold, J.G. Engbers, B.J.L. DeRode, G.P. Molhoek, P.M. Van Kalmthout, L. Cozijnsen, C.L. Van Engelen, J.H.M. Deppenbroek, S.K. Oei, J.B.L. ten Kate, M.J. de Leeuw, G.J. Laarmann, J.V.C. Stevens, D. Haan, L. van Bogerijen, W.C.G. Smits, P.W. Westerhof, P.W.J. Stolwijk,

H.A.M. Spierenburg, E.J. Muller, B. Cernohorsky, J.J.J. Bux, H.J.A.M. Penn, H. Fintelman, C. Van Rees, M.L. Simoons, J. Kerker, E.G. Faber, R. Bergshoeff, H.W.O. Roeters Van Lennep, W. Muys v/d Moer, L. Relik-van Wely, F. van Bommel, R.J. Bos, A. Zwiers, C.M. Leenders, P. Zijnen, D.G. de Waal-Ultee, H. De Rebel-De Vries, S.A.G.J. Witteveen, P. de Weerd, P. Aylward, B. Hockings, M. Brown, D. Cross, G. Lane, G. Aroney, D. Hunt, B. Singh, A. Tonkin, P. Thompson, G. Nelson, R. Newman, J. Federman, T. Campbell,

J. Healey, D. Ramsey, W. Ryan, J. Counsell, D. Coles, A. Thomson, S. Woodhouse, G. Simmons, P. Harris, P. Caspari, A. Limaye, T. Donald, S. Coverdale, G. Smith, R. Walker, R. Harper, C. Gnanharan, P. Carroll, J. Woods, C. Hadfield, P. French, A. Groessler, B. Morphet, G. Phelps, B. Quinn, K. Gunawardane, P. Kertes, C. Medley, A. Soward, T. Htut, A. Appelbe, J. Johns, I. Beinart, R. Hynes, M. Knapp, P. Curteis, D. Owensby, P. Davidson, W. Renton, P. Windsor,

L. Bolitho, B. Forge, R. Ziffer, R. McLeay, R. Cranswick, L. Mollison, H. De Geest, F. Van de Werf, G. Verstreken, J. Col, R. Beeuwsaert, J. Boland, A. Vanrossum, H. Lesseliers, R. Popeye, Ph. Dejaegher, B. Pirenne, E. Van der Stichele, J. Chaudron, M. Castadot, L. Dermauw, G. Vanquickenborne, W. Van Meghem, H. Robijns, M. Vankuyk, C. Emmerechts, D. Dendooven, H. Van Brabant, E. Installe, S. Dierickx, C. Haseldonckx, H. Lignian, J. Beys, P. Noyens, A. Van Dorpe, Ph. Henry, Ph. Van Iseghem, F. Gielen, D. Lanoy, P. DeCeuninck, J. Schurmans, L. Geutjens, M. Carlier, P. Surmont, Ch. Henuzet, P. Van Robays, R. Stroobandt, P. Peerenboom, C. Mortier, X. Dalle, K. Mitri,

U. Van Walleghem, J. Bonte, D. Koentges, A. De Paepe, L. DeWolf, Th. Sottiaux, J. Van Besien, P. Van den Heuvel, H. Ulrichts, Y. Deheneffe, H. Jacobs, J. Croonenberghs, L. Pirot, J. Carpentier, R. Schreuer, L. Vermeersch, D. Stroobants, D. Missotten, E. Marchand, S. De Schepper, B. Carlier, Ch. Doyen, A. Palmer, M. Jottrand, C. Gillebert, M. Bayart, A. Van Wylick, J. Leonard, E. Benit, W. Rutsch, H. Topp, H. Simon, H. Ditter, P. Wylicil, H. Meyer-Hoffmann, H.P. Nast, R. Engberding, K. Caesar, U. Schmitz, W. Jansen, H.R. Ewers, H.U. Kreft, D. Kaut, P. Schweizer, J. Cyran, U. Peters, E. Horstmann,

R. Koch, R. Scheemann, J. Bolte, W. Berges, K.P. Schueren, M.H. Hust, H.U. Koch, W. Overbuschmann, B. Henkel, S. Troost, R. Jacksch, W. Burkhardt, H. Loellgen, J. Schimanski, H. Callsen, P.W. Kummerhoff, H. Hochrein, G.M. Mueller, H. Schulz, V. Hossmann, F. Voehringer, D. Boettcher, P. Glogner, K.H. Hohmann, H.J. Von Mengden, W. Krengel, B. Maisch, P. Spiller, M. Adamczak, R. Wacker, W. Urbaszek, H.D. Bundschu, W. Ernst, R. Eisenreich,

M. Konz, C. Dienst, J.G. Schmailzl, A. Gartemann, W. Sill, C. Piper, J. Schiffner, N. Meyer-Guenther, D. Siebenlist, E. Chorianopoulos, R. Schroeder, P. Oehl, W. Lengfelder, J. Djonlagic, H.W. Hopp, W. Weser, P. Kahl, P.H. Althoff, R. Hopf, R. Oberheiden, H.V. Lilienfeld-Toal, G. Schulte-Herbrueggen, P. Doenecke, J. Valt, A. Py, J. Acar, A. Vahanian, G. Grollier, D. Barreau, K. Khalife, J.C. Quiret, X. Tran Thanh, J.P. Bourdarias, P. Besse, M. Hiltgen, P. Bernadet, J. Boschat,

C. Gully, J.M. Mossard, B. Charbonnier, F. Funck, M. Bedossa, R. Grolleau-Raoux, J. Cassagnes, J.C. Daubert, Ph. Beaufils, J.M. Juliard, G. Bessede, B. Vitoux, C. Thery, G. Hanania, C. Mycinski, E. Brochet, C. Cassat, C. Socolovsky, R. Mossaz, J.L. Fincker, M. Lang, J.L. Guernonprez, J.M. Demarcq, A. Page, C. Guerot, R. Barraine, Ph. Morand, A. Bajolet, J. Vedel, P. Dambrine, H. Lardoux, B. Veyre, A. Vacheron, F. Latour, J.P. Normand, J.Y. Thisse, J. Machecourt, J.P. Bassand, B. Carette, C. Toussaint, J.P. Cebon, M.F. Bragard, Ph. Geslin, O. Leroy, G. Allard-Latour, F. Fockenier, J. Gauthier, M. Escande, M. Viallet, R.G. Wilcox, R.D. Thomas, R.M. Boyle, R.H. Smith, E.T.L. Davies, J. Kooner, G. Terry, B. Gould, M.O. Coupe,

J.E.F. Pohl, E.W. Barnes, H. Simpson, A. Davis, J.A. Bell, I.N. Findlay, P. Wilkinson, G.C. Sutton, T.S. Callaghan, E.J. Wakely, D. Waller, G. Tildesley, R.L. Blandford, P. Leslie, H. Ikram, S. Foy, S. Mann, A. Mylius, S. Anandaraja, M. Singh, D. Friedlander, B. Bruns, L. Nairn, M. Abernethy, R. Rankin, D. Durham, J. Doran, M. Audeau, H. White, S. Reuben, G. Lewis, H. Hart, G. Wilkins, G. Froufe, X. Bosch, F.F. Aviles, C.M. Luengo, J. Corrons, L.L. Bescos, A. Loma, R. Masia, J. Figueras, V. Valle, L. Saenz, A. Betriu, E. Alegria,

J. Eizaguirre, T. Kraska, J. Kuch, A. Dydzynski, J. Stepinska, K. Wrabec, E. Czeszowska, Z. Sadowski, K. Zawilska, Z. Kornacewicz-Jach, E. Nartowicz, W. Piwowarska, G. Swiatecka, J. Wodnicki, T. Petelenz, A. Kalickinski, P. Urban, M. Pfisterer, O. Bertel, H.R. Jenzer, W. Angehrn, H.R. Baur, K.M. Daly, J. Horgan, M. Walsh, J. Taaffe, D. Murray, D. Sugrue, P. Sullivan, B.C. Muldoon, D. McCoy, B. Maurer, G. Fitzgerald, T. Pierce, K. Balnave, R. Erpelding,

G. Schulte-Herbrueggen we salute you!

Further congratulations to all those involved in what we believe is the largest collaborative paper in the history of science.

If you know of a greater list, or would like to nominate someone for their *Fifteen millimetres of fame*, let us know at:
letters@null-hypothesis.co.uk

Conclusive proof of global warming from studies of frozen confectionary

by **Bluen Wiytarmee**

Fortress Portman Institute of Higher Genius, Ipswich, United Kingdom.

Introduction

Global warming has been a matter of great debate for many years; indeed it was French mathematician Jean-Baptiste-Joseph de Fourier who first raised the possibility that gaseous emissions into the atmosphere could cause temperature increases as early as 1820. However, there still remains a certain amount of debate as to whether global warming is an actual phenomenon, or whether it is merely a conspiracy put forward by evil anti-capitalists hell-bent on bringing about the end of economy, society and the manner of life to which we are accustomed.

Defined as a slow gradual increase in the Earth's surface temperature caused by the increase of 'greenhouse gases' in the atmosphere, global warming seems to be responsible for changes in world climate patterns. Here, I present data that I believe provides conclusive proof that global warming is a very real occurrence.

Methods

I performed a meta-analysis of relevant information in previous publications, manuscripts, anecdotal scribblings, cereal packets and street-art. Initially the analysis was carried out blind, but time constraints closed my window of opportunity and it was curtains for that idea.

Results

As usual with statistics the meta-analysis produced a whole load of guff. However, having fiddled around with the numbers, tried a range of different techniques and blurred the occasional value, I finally found a finding. Having controlled for both annual and yearly publication rate it became apparent that, over the past 50 years, there has been a dramatic increase in the number of publications concerning 'ice-cream', and this trend seems set to continue (Figure 1).

It is logical, nay obvious, that increased research interest in ice-cream has been shaped by market, cultural and armed forces, and is therefore related to increases in mean global temperature. Further data tweaking showed that during the study period demand for ice-cream has increased, leading to large-scale cultural changes. Whilst consumption has gone up, average ice-cream quality has decreased (Vega *et al.* 2004) along with the average size of *Flake*. Conversely incidences of near fatal ice-cream-induced indigestion have increased (Hammerman & Kaplan 1994), due to the higher atmospheric temperature leading to a lower average ice-cream half-life (the amount of time taken for half a dollop of ice-cream to inmitancipate - Figure 1). Since half-lives have decreased, the speed with which ice-creams need to be eaten has increased from 5 licks/minute to well over 11 licks/minute, which is well within the range of troughing, as described by Warren (1972, see also Burnett 1994).

Discussion and Implications

It seems to me that there can be little doubt now over the occurrence of global warming as a real phenomenon, and with it there come obvious and serious implications. In addition to the dire warnings over melting of the ice caps, desertification, flooding and all-round global disaster, we could also be seeing the dawn of a new social era

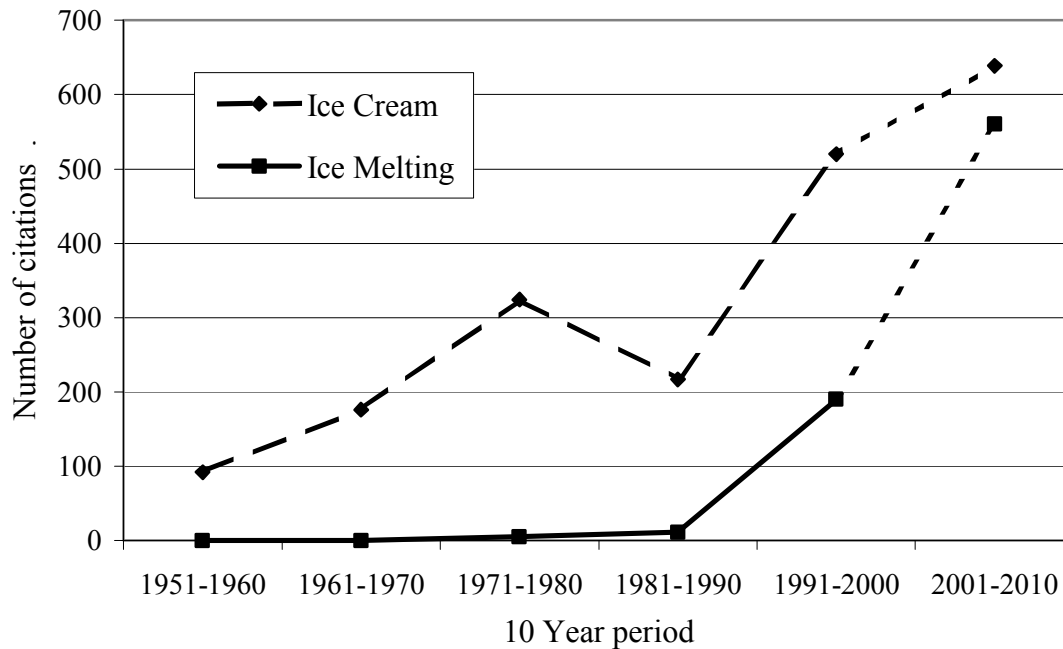


Figure 1. Increase in the incidence of 'ice-cream' in the literature over the last 50 years (left axis), the high peak in the 1970s was caused by the unexpectedly hot summer of 1976. Standard unit of quality (SUQ) values for some interrelated ice-cream matters (right axis) necessary for this study. (Dotted lines indicate predicted values for 2001-2010 period).

in which purveyors of substandard ice-creams become inordinately powerful members of society. With this kind of power who knows how long it will be before Mr. Whippy stands for government? Furthermore, I envisage a period of rapid tongue evolution for the human species.

With ice-cream half-lives set to decrease further (Flores & Goff 1999), there will be strong selective pressure to be able to eat ice-creams more quickly, leading to specialised morphological adaptations – such as superlinguation, an extension of the tongue. We hope that these findings will finally nudge the world's presidents, prime ministers and governors to join forces, and indeed hands, to try and reduce the impact of global warming, and steady our ice-cream supply.

References

- Burnett, A.W. (1994). Regional-scale troughing over the Southwestern United States: Temporal climatology, teleconnections, and climatic impact. *Physical Geography* **15**, 80-98.
- Flores, A.A. and Goff, H.D. (1999). Recrystallization in ice cream after constant and cycling temperature storage conditions as affected by stabilizers. *Journal of Dairy Science* **82**, 1408-1415.
- Hammerman, C. and Kaplan, M. (1994). Slurping and burping: Impact on oxygen saturation. *Pediatric Research* **35**, A228-A228.
- Vega, C., Andrew, R.A. and Goff, H.D. (2004). Serum separation in soft-serve ice cream mixes. *Milchwissenschaft - Milk Science International* **59**, 284-287.
- Warren, R.C. (1972). Mashing, munching, crackling, crunching: Monster gnash. *New Zealand Journal of Agriculture* **125**, 24.

Yin and Yang



Yin the feminine, the dark and shadowy, the soft, the yielding, experienced and aged, pliant and flailing. Yang the masculine, the bright and rigid, firm and young, thrusting and piercing. When one is strong, the other is weak, a never ending cycle of waxing and waning that together produces Wu. Wu is everything, Wu is nothing.

The study of both Yin and Yang is eternal. It means understanding everything, being everything but knowing nothing.

Below, are examples of studies where Yin and Yang have come together. Whether they have produced Wu or not is another matter...

Yin, Y.F. and Yang, H. (2003). Simultaneous determination of the equilibrium market penetration and compliance rate of advanced traveler information systems. *Transportation Research A. - Policy and Practice* **37**, 165-181.

Yin, J.C.T. and Yang, K.P.A. (2002). Nursing turnover in Taiwan: a meta-analysis of related factors. *International Journal of Nursing Studies* **39**, 573-581.

Yin, L.Z. and Yang, W. (2001). Optimality criteria method for topology optimization under multiple constraints. *Computers and Structures* **79**, 1839-1850.

Yin, C. and Yang, C.Z. (2001). Mechanism analysis of the PEG-participated Gilch synthesis for soluble poly(p-phenylene vinylene) derivatives. *Journal of Applied Polymer Science* **82**, 263-268.

Yin, P.D. and Yang, Y.Y. (1995). Clinical-evaluation of cyclosporine-A in treatment of Lupus Nephritis. *Kidney International* **48**, 623-624.

****Yin, T.G., Yang, L. and Yang, Y.C.** (1995). Tyrosine phosphorylation and activation of JAK family tyrosine kinases by interleukin-9 in MO7E cells. *Blood* **85**, 3101-3106.

Yin, T. and Yang, Y.C. (1993). The common signal-transduction pathway shared by IL-11, IL-6, LIF, and Oncostatin-M via activation of MAPKs and PP90(RSK) in mouse 3T3-L1 cells. *Blood* **82**, A371-A371.

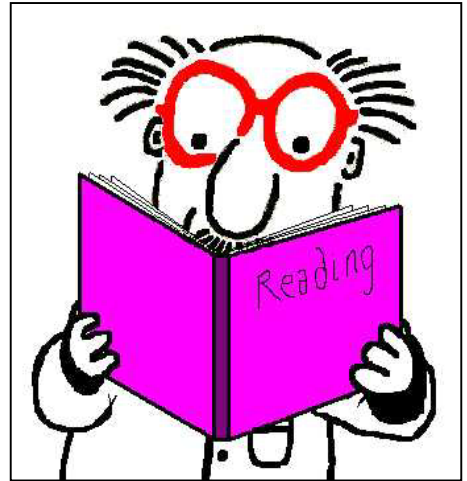
****** It is unclear what effect (if any) two Yangs might have on the Yin, or whether two Yangs make more (or less) Wu.

Something I read in a book...

Why aren't Mongooses, Mongeese?

By Prof. Mark Viney, Biological Sciences, University of Bristol, Bristol, BS8 1UG

Irregular plurals (where the plural rule “to add an S” isn’t used) have to be learnt. We have all learnt these, so we can pluralize man to men, mouse to mice, goose to geese. We can also use these irregular plurals in compound words, so that we get policemen and house mice. Why then, Mongooses? This book I read*, argued that we only use the irregular plural for compound words (policeman), when that compound word is of the same nature as the root word (man). Thus, a policeman is a type of man, a house mouse is a type of mouse. But, a Mongoose isn’t a type of goose, and so we don’t use the irregular plural, but rather use the regular plural rule ‘add an S’. So, Mongooses are not Mongeese. This book also suggests, that this applies to what we hold in our hands most of the time - the computer mouse. Because these bits of plastic are not a type of mouse we often call groups of them mouses - try it.



*[Steven Pinker, *Words and Rules*, Basic Books, 1st edition, 1999]

What did *YOU* read in a book? Write to us at letters@null-hypothesis.co.uk

Visit our website:

www.null-hypothesis.co.uk

To find out more about submitting articles and for more details on our next issue - out next month.

Hamster review

What do Hamsters know? Well, quite a lot as it happens! Here are some papers written by Hamsters, or at least, people called Hamster.

Hamster, A.W., Webers, J.M.A., Kachlicki, T., Wormeester, H., Flokstra, J., Rogalla, H., van den Berg, M.L., Bruijn, M.P., Kiewiet, F.B., Luiten, O.J., de Korte, P.A.J. (1997).

Development of a prototype X-ray detector, using mono crystalline Nb and Ta absorbers. *Applied Superconductivity* **1/2**, 425-428.

Sullivan, A., **Hamster, H.**, Gordon, S.P., Falcone, R.W. and Nathel, H. (1994).

Propagation of intense, ultrashort laser-pulses in plasmas. *Optics Letters* **19**, 1544-1546.

Schomerus, H. and **Hamster, W.** (1984).

Variance analytical studies on the role of alcohol in latent portosystemic encephalopathy (PSE). *Zeitschrift fur Gastroenterologie* **22**, 486-486.

Hamster, W. and Petruch, F. (1982).

Effects of cerebro-organic attacks and anticonvulsive drugs during pregnancy on mental and emotional development in children of epileptic mothers. *Arzneimittel-Forschung/Drug Research* **32**, 889-889.

Hamster, W., Egberts E.H. and **Hamster, H.** (1982).

Treatment with branched-chain amino-acids and effect on psycho-physical capacity functions in latent porto-systemic encephalopathy. *Arzneimittel Forschung* **32**, 901-902.

Nice to see two Hamsters collaborating together in this latter paper...

New hope for shopaholics

Koran, L.M., Bullock, K.D., Hartston, H.J., Elliott, M.A. and D'Andrea, V. (2002). Citalopram treatment of compulsive shopping: An open-label study. *Journal of Clinical Psychiatry* **63**, 704- 708.

The authors are at Stanford University, California.

Summary

Compulsive shopping is defined as a preoccupation with shopping and the inability to resist buying unneeded or unnecessary items. The study used 22 women and 2 men, most of whom had been shopping on and off for 20 years or more. Subjects were treated with citalopram, and during a 6-month follow-up period, subjects who continued citalopram therapy were less likely to relapse into shopping than those who stopped the treatment.

'Thing' of the month

This month:

Lipstick...!

Lipsticks first appeared in the ancient city of Ur, near Babylon, about 5000 years ago. At that time, semiprecious stones such as lapis lazuli and malachite were ground up, and used as pastes. It is claimed that Cleopatra's lipsticks were made from finely crushed red carmine beetles mixed with ant eggs as a base. Henna, and other dyes were also used in ancient Egypt.

During the era of Queen Elizabeth I, lipsticks were usually a blend of cochineal and beeswax, or dark red plant dyes. After the French revolution, make up was considered uncouth, and didn't make a revival until the 1800s.

It has not always run smooth of course! Thomas Hall, an English churchman, led a movement in 1653 declaring that women who put paint on their lips were trying to "ensnare others and to kindle a fire and flame of lust in the hearts of those who cast their eyes upon them." In 1770, the British Parliament passed a law condemning lipstick, and that "women found guilty of seducing men into matrimony by a cosmetic means could be tried for witchcraft."

The French re-initiated the revival in cosmetic use at the end of the 19th century. After a lot of experimentation, Hazel Bishop made a lipstick in 1949 that stayed on the lips longer than any other product at the time. "Lipline" by Gala was the first lipstick in a tube in 1957, before which, they had to brush it on.

Marilyn Monroe wore bright lipstick in the film "Some Like it Hot", and created a new trend in 1959. Then, in 1966, Mary Quant declared that pale gloss lipstick was "in", and thus it became very fashionable.



War paint in a tube

Companies grew rapidly, Max Faktor, a Polish pharmacy apprentice during the 1870s, moved to the USA in 1904 and became the father of modern make-up. In 1915, the Maybelline Company was founded by TL Williams, (named after his sister, Mabel). The world's biggest cosmetics group is now L'Oreal, founded by French chemist Eugene Schueller in the early 1900s



Lipstick contains a variety of waxes, oils, pigments, and emollients. The wax gives it the shape, texture and ease of application, the oils form a hard layer after application, and the pigments give it the array of colours. More recent additives have included moisturizers, vitamin E, Aloe Vera, collagen, amino acids, and sunscreen, which keep lips soft, moist, and protected from the elements.

The waxes used in lipsticks include beeswax, carnauba wax (from the leaves of Brazilian wax palm trees), and candelilla wax (from the candelilla plant in Mexico). Commonly used oils are olive oil, mineral oil, castor oil, cocoa butter, lanolin, and petrolatum. More than 50% of lipsticks made in the USA contain considerable amounts of castor oil, which may explain why heavy users have more frequent trips to the bathroom!

'Lippy' gets its colour from a wide range of added pigments. The more common dyes that are used are: D&C Red No. 27 (which incidentally is 2',4',5',7'-tetrabromo-4,5,6,7-tetrachlorofluorescein!!!) and insoluble dyes called lakes, such as D&C Red No. 34, Calcium lake, and D&C Orange No. 17. Shades of pink are made by mixing titanium dioxide with various shades of red.

Lipsticks come in a variety of styles: frosted, matte, sheers, stains, and long-lasting colour are just a few. Matte lipsticks are heavy in wax and pigment, and have more texture than shine. Glosses have more shine and fewer pigments. Shimmer lipsticks have extra sparkle, which comes from mica or silica particles, or bismuth oxychloride, (synthetic pearl), which gives it a frosted look.

Long-lasting colour lipsticks contain silicone oil, which seals the colour to your lips. Finally, lip gloss contains the same ingredients as lipstick, but has less wax and more oil to make the lips shinier.

Max Faktor once stated: "A woman who doesn't wear lipstick feels undressed in public. Unless she works on a farm." According to a 1996 survey by Shisedo Cosmetics, Tokyo, 87% of American women admit to having left traces of lipstick in unwanted places.

Driving ewe crazy: Changes in sheep and driver behaviour

by **Dr. S. Solomon**

The Science Shed, Outer Hebrides, United Kingdom.

Abstract

A study was carried out on sheep and car driver behaviour on a stretch of road between Stornoway and Leverburgh on the Isles of Harris and Lewis in the Outer Hebrides from May 2002 to May 2004. Collisions, near collisions and altered patterns of behaviour resulting from interactions were monitored and logged. Implications of such behaviour are discussed.

Introduction

Roads, traffic on the roads and associated interactions between humans and animals on roads continues to increase as human populations grow. This can have dramatic effects on animal population ecology (Saeki & Macdonald 2004), animal behaviour and even on animal evolution (Schmidt & Jensen 2003). In recent years the volume of traffic on the Hebridean islands of Harris and Lewis has increased. At the same time crofting and sheep farming continues to provide much needed meat and wool to the local population. This paper discusses how the two facets of island life interact with each other to form equilibrium between driver behaviour and sheep road use behaviour.

Methods

Our volunteers drove around the islands (Figure 1) for ages in a diesel powered V reg. Ford Fiesta (Anon.1990).

Results

It was found that the number of near misses and collisions increased as speed increased, although the number of collisions decreased at very high speeds (Figure 2).

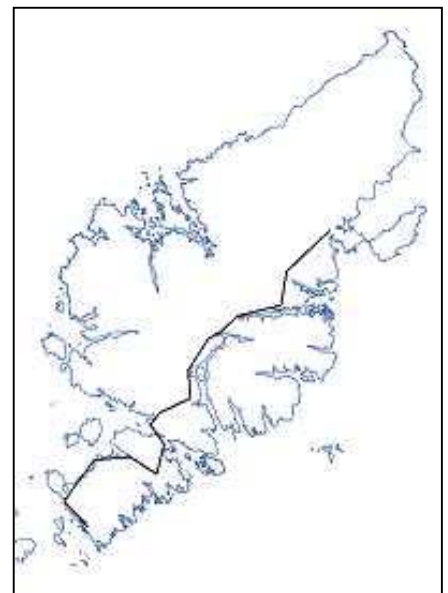


Figure 1. Study area on Lewis and Harris, the dark line represents the road

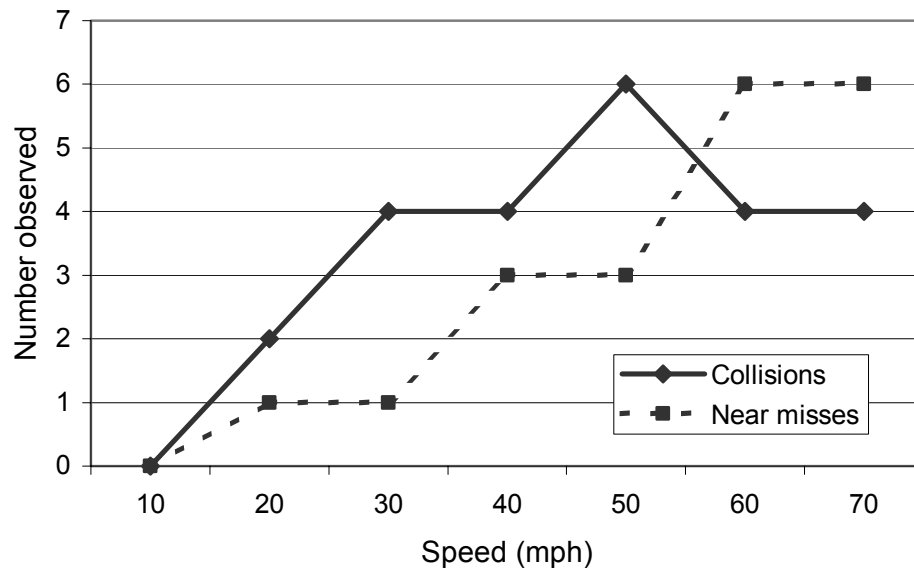


Figure 2. The effects of driver speed on collisions and near misses between sheep and cars

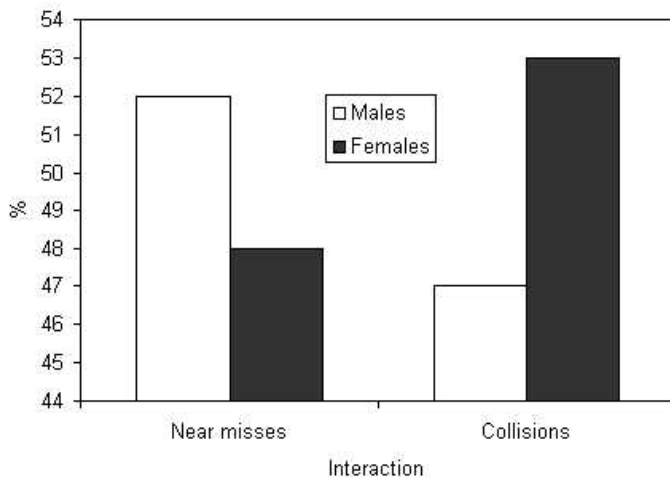


Figure 3. Effect of driver gender on the different type of interaction

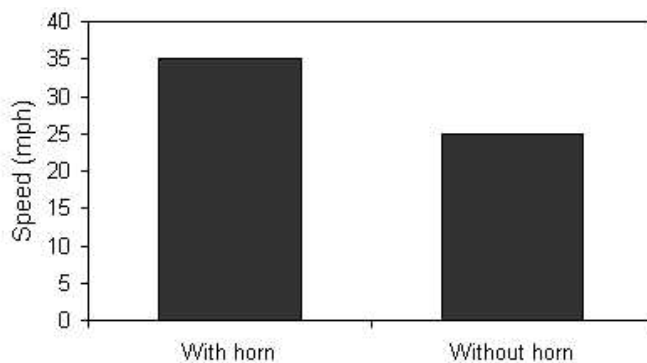


Figure 4. The effects of using the horn on the driving speeds that can be achieved on sheep infested roads

When we look at gender of the driver, it was found that the number of near misses was marginally greater for males than for females, while more sheep were actually hit by female drivers. (Figure 3). A top speed of 122mph was obtained by one driver before he drove off a cliff. No sheep were harmed in his final descent.

It was found that if sheep were on the road, they could be forced off the road while driving at a greater speed while using the horn (Figure 4). Sheep did not remember the make and colour of car and, therefore, the effect was only temporary and did not last for longer than a few minutes, i.e. sheep could not be trained.

Discussion

Both collisions and near misses increase at higher speeds, though at the top end of the speed range collisions decrease and near misses increase. This could be due to the fact that adrenaline in drivers increases disproportionately with speed making reaction times faster so that collisions are replaced by near misses. Male drivers may be more skilled at high speeds as shown by the greater number of near misses rather than collisions when compared to female drivers, in disagreements with hypotheses set forward by Williams (2002). However, this behaviour could be associated with 'racing driver syndrome' (Walker 2003), a controversial theory, which states that at higher speeds, male drivers become increasingly juvenile, adopt *Formula 1* driving positions and make 'neeeeeeeooooowwwwwwwww' noises.

Interaction rate can be decreased by use of the horn, although this is a short term affect and sheep are not able to learn from horn experiences in the same way they learn that grass tastes good (Olson *et al.* 1996). 'Dukes of Hazard' style horns, with multiple notes and tones, are heard from a greater distance, and may decrease sheep collisions still further, as may painting sheep red. Whether male drivers are more likely to use the horn than female drivers resulting in their lower collision rates is something that warrants future investigation.

References

- Anon (1990). New Ford Fiesta. *International Journal of Vehicle Design* **11**, 104-111.
- Olson, B.E., Wallander, R.T., Thomas, V.M., and Kott, R.W. (1996). Effect of previous experience on sheep grazing leafy spurge. *Applied Animal Behaviour Science* **50**, 161-176.
- Saeki, M. and Macdonald, D.W. (2004). The effects of traffic on the raccoon dog (*Nyctereutes procyonoides viverrinus*) and other mammals in Japan. *Biological Conservation* **118**, 559-571.
- Schmidt, N.M. and Jensen, P.M. (2003). Changes in mammalian body length over 175 years - Adaptations to a fragmented landscape? *Conservation Ecology* **7**, part 6.
- Walker, M. (2003). *Unless I'm very much mistaken*. HarperCollinsWillow.
- Williams, C. (2002). An examination of masculinity and delinquency as psychosocial factors underlying the risky road use behaviour of young male offenders. *Australian Journal of Psychology* **54**, 63-63.

We need your articles!

Have you researched and written some unlikely science? Have you broken new ground? Have you disproved and then re-written a theory? Write to us at articles@null-hypothesis.co.uk

October birthdays

5th - Donald Pleasence, actor, most noted for playing Blofeld in the James Bond films, as well as the *Halloween* horror films.

15th - Friedrich Nietzsche, German philosopher of the late 1800s who challenged the fundamentals of traditional morality and Christianity, born in 1844.

20th - Sir Christopher Wren, architect, born in 1632. Famously re-built London after the Great Fire in 1666, including St. Paul's cathedral and fifty other London churches, hospitals, theatres and more.



23rd - Michael Crichton, American writer famous for *The Andromeda Strain* (1971) and *Jurassic Park* (1993), born in 1942.

25th - Pablo Picasso, Spanish painter and sculptor, born in 1881. Famous for his Blue period, Rose period, Cubism and Realist and Surrealist works.

27th - Captain James Cook, English born explorer, born in 1728, who sailed in the *Endeavour*, and discovered Australia, New Zealand and the Hawaiian islands, coming to a sticky end in Hawaii in 1779, after a dispute over stolen property.

28th - William "Bill" Henry Gates III, chairman and chief software architect of Microsoft Corporation, born in 1955.

Famous quotes

The most exciting phrase to hear in science, the one that heralds new discoveries, is not "Eureka!" but "That's funny..."

~ Isaac Asimov

Doctors and scientists said that breaking the four-minute mile was impossible, that one would die in the attempt. Thus, when I got up from the track after collapsing at the finish line, I figured I was dead.

~ Roger Bannister (after his four-minute mile in 1952)

A straight line may be the shortest distance between two points, but it is by no means the most interesting.

~ Dr. Who, *The Time Warrior*

Everyone has a right to a university degree in America, even if it's in hamburger technology.

~ Clive James

Only two things are certain: The universe and human stupidity; and I'm not certain about the universe.

~ Albert Einstein

H₁ - The Alternative

Our monthly round-up of some of the most interesting recently-published research

Planetary Physics

Did life exist on Mars? Search for organic and inorganic signatures, one of the goals for "SAM" (sample analysis at Mars).

Cabane, M. *et al.* (2004). *Advances in Space Research* **33**, 2240-2245.

Mars shows signs of a previous Earth-like climate, and, therefore, there is the chance of the possible development of life, either underground or at the surface.

Sample analysis at Mars (SAM) is an experiment that can be put forward for atmospheric, ground level and underground *in situ* measurements. One of the goals is to gather information on the possibility that life could have developed on Mars and to detect traces of biological activity, past or present.

SAM focuses on detecting organic molecules: Volatile organics are extracted from the samples and the gaseous mixtures obtained are analysed. SAM also investigates carbonates and other salts necessary for the development of life. The authors also show that it may be possible to discriminate between abiotic minerals, and minerals created by living organisms, such as shells, etc.

Sociology and Neuroscience

Incentive-elicited brain activation in adolescents: Similarities and differences from young adults.

Bjork, J.M. *et al.* (2004). *Journal of Neurosciences* **24**, 1793-1802.

Why are teenagers less motivated? They have been found, through this imaging study, to show less activity in certain regions of the brain. This may make them more likely to take part in

dangerous activities such as drink driving, due to an under-developed right ventral striatum.

Risk-taking among teenagers is higher than among adults. However, the reasons for these (which include taking drugs and alcohol and taking more sexual risks) have been strongly debated. Researchers now though, have found that there is a difference in brain chemistry in part of the brain associated with risk and reward. In teens, this part of the brain is under-active, and it is suggested that they seek more extreme activities to obtain normal stimulation in this brain area.

The team, based at the *US National Institute on Alcohol Abuse and Alcoholism*, did brain scans on 12 teenagers, and 12 adults, while playing a specific game, involving gambling for rewards. Although both groups got their rewards, the brain scans showed that the youngsters had much less activity in their right ventral striatum. This suggested that they needed extra stimulation to achieve the same amount of brain activity as adults. This in turn might explain why teenagers find it hard to achieve long-term goals.

Chemistry

Formicine ants: An arthropod source for the pumiliotoxin alkaloids of dendrobatid poison frogs.

Ralph A. *et al.* (2004). *Proceedings of the National Academy of Sciences* **101**, 8045-8050.

An amazing diversity of bioactive fat loving alkaloids are present in the skin of poison frogs and toads around the world. Originally discovered in some neotropical frogs, these alkaloids are now known from certain other frogs in Madagascar, Australia, and some toads from South America. Probably acting as a

passive defence, these alkaloids appear to be obtained from insects and arthropods which themselves contain alkaloids. Identifying the arthropod source of these alkaloids has been a tough challenge for chemical ecologists.

However, an extensive arthropod collection from forests has now helped to reveal the source of these toxins, and it comes, so the authors tell us, from the presence of ants in the stomach contents of these frogs. These findings further support the importance of ant-specialisation and use of alkaloids in the evolution of bright warning colours in poison frogs and toads.

Medicine

Ophthalmic glucose sensing: A novel monosaccharide sensing disposable and colorless contact lens.

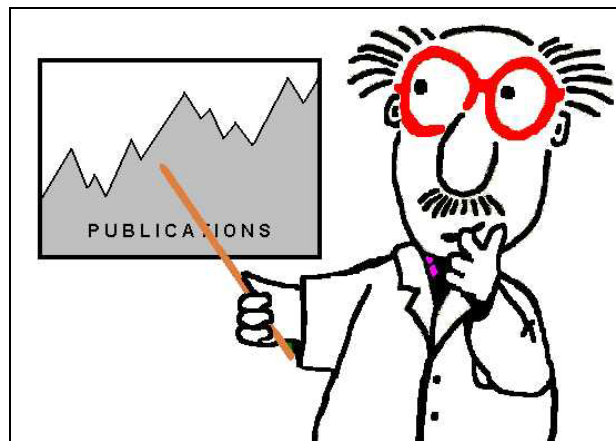
Badugu, R. *et al.* (2004). *Analyst* **129**, 516-521.

The authors here have developed a method using a daily disposable contact lens embedded with a sugar-sensing acid containing fluorophores, to continually monitor tear glucose levels, and therefore potentially also blood glucose levels.

This acid detects extremely low glucose concentrations in our tears. The compatibility of the new probes with a readily available, disposable contact lens, which is already optimised with regard to vision correction, size and oxygen/analyte permeability, has already been assessed.

Results show that this method is appropriate for continuous monitoring of tear glucose levels in the concentration range 50-500 μM , which tracks blood glucose levels roughly 5-10 times higher.

This may be a unique way of continuously checking glucose levels in a non-invasive way for diabetics, especially as many suffer from eye disorders or need vision correction.



Psychology

Penalties for success: Reactions to women who succeed at male gender-typed tasks.

Heilman, M.E. *et al.* (2004). *Journal of Applied Psychology* **89**, 416-427.

Three studies were carried out to investigate reaction to female success in a male gender-typed job. Some 242 subjects took part in the experiment; and the results showed that (a) when women are known to be successful, they are liked less and more personally criticised than equally successful men, (b) these negative reactions seem to occur only when the success is in an area that is specifically male in nature, and (c) being disliked can seriously affect their career, both for overall evaluation and for suggestions relating to organisational distribution of rewards.

These results support the idea that gender stereotypes may cause bias in assessments of women and their performance, even when these women have proved themselves to be successful and competent.

We welcome contributions to this column. Articles should be recent (within the last few months), and presented as a summary or review. Include all authors and full citation to us at: letters@null-hypothesis.co.uk

Time-wasting sites of the month

Tried and tested by the editors, websites that are definitely worth a look...

Interactive site:

www.hoogerbrugge.com

Fabulous interactive weirdness!!! Follow the story of the mad doctor, and marvel at the interludes with all kinds of strange goings-on. Not entirely sure *what* it's all about, but give it a look.



www.hoogerbrugge.com

Game site:

www.bossmonster.com/games/antcity.html

Remember when you used to set fire to things with just a magnifying glass and a sunny day? Well here is a bigger and better version. Terrorize a city, burn things and cause havoc!

Informative site:

www.terraserver.com

Satellite photographs and aerial images of your city, town and location anywhere in the world.

Lies, damn lies and statistics

No lies in fact, all real fascinating statistics...

Percentage of men who say they are happier after their divorce or separation: 58

Percentage of women who say they are happier: 85

The average person over fifty will have spent 5 years waiting in queues.

Percentage of bird species that are monogamous: 90

Percentage of mammal species that are: 3

A metal coat hanger is 44 inches long once its been straightened.

If you shouted for 8 years, 7 months and 6 days you would have produced enough sound energy to heat one cup of coffee.

A catfish has over 27,000 taste buds.

Banging your head against a brick wall uses 150 calories an hour (but will probably also put you in hospital).

In *m & m* sweets, the letters stand for Mars and Murrie, the sweet makers in 1941.

Units you didn't know existed - Part 1...

The modern metric system of units and standards of measure hails from the 17th and 18th century, and the efforts to establish an easy to use system of weights and measures that would be practical all over the world. However, besides the usual metres, kilograms, pints, and miles, there are a number of metric and imperial measures used today that are simply strange!



Nit (nt): A unit of luminance coming from the Latin *niteo*, meaning to shine. It is equal to one candela per m², or 10⁻⁴ **stilb**, which in turn comes from the Greek *stilbein*, to glitter.

Growler: A unit for a beer container in the US, intended to be taken away, that holds about 1.89 litres.

Jerk: A unit of acceleration change in engineering. When you sit in a car and it jerks, it is a change in acceleration of one foot per second per second in one second, or 1ft/sec³. This equals about 0.3048 m/s³.

Tical: A unit of weight in SE Asia, taken from the coin of the same name. It is still used in Myanmar (Burma) to measure precious metals and drugs, and is equal to 16.4 grams.

Butt: A unit of volume for wines and other alcoholic drinks. A butt is equal to 2 **hogsheads**. In the UK, a butt of beer is 108 imperial gallons or 490.98 litres. The word comes from the Roman word *buttis*, meaning a large cask for wine.

Degree MacMichael (°McM): A unit to measure the viscosity or thickness of chocolate. Values range from about 60 °McM (thin runny chocolate) to about 190 °McM (very thick chocolate for dipping). A MacMichael viscometer is used to make the measurement.

Noggin: An old fashioned unit of liquid volume, used in Ireland. It is equal to about ¼ pint, but sometimes taken to be a half pint - typical!

Scoville unit: A unit for measuring the concentration of capsaicin in chillies. Developed by Wilbur Scoville in 1912, it is on a scale of 0 to 577,000 for the hottest recorded chilli, which was a Habañero. A measurement of 30,000 units means that to make the burn of the chilli undetectable to the human tongue, it should be diluted by 30,000 to 1 with sugared water. Nowadays, liquid chromatography is used to measure it more accurately. Jalapeno rate between 2,500-10,000, Cayenne from 30,000-50,000, Habañero from 80,000-300,000+. Pure capsaicin measures 16,000,000 Scoville units.

Smidgen: It really is a small unit of material. Recently, stores selling kitchen supplies in America and other countries have sold measuring spoon sets, where the smallest spoon is called a smidgen. It is equal to ½ a pinch, 1/32 of a teaspoon, 0.005 fluid ounces or 0.15 ml. The word comes from smutch, or smudge, meaning a small spot.

Lippie: An long-established unit of Scotland, equal to ¼ Scots **peck**, or about 2.27 litres of wheat, peas or beans; and 3.04 litres of barley or oats.

More bizarre units in next month's issue...

Do too many cooks spoil the broth?

by **David G. Hall**

School of Biological Sciences, University of Bristol, Woodland Road, Bristol, BS8 1UG, United Kingdom.

Introduction

The origin of this proverb is somewhat sketchy, but the meaning is as clear as a bell.* Or is it? Do too many cooks actually spoil the broth? In this experiment, broth is prepared, cooked, and served by several kitchens full (and not so full) of cooks, in an attempt to quantify the problem.

* Origin also unknown.

Methods

A standard broth recipe was obtained and followed (Box 1), using a number of different cooks. Cooks were assembled in the kitchen area, and each ‘group’ of cooks had the same amount of ingredients at their disposal, and the same amount of time.

The broth was prepared at different sessions by: 1 cook, 2 cooks, 4 cooks, 8 cooks and 16 cooks, each using the same kitchen facilities and each broth was tested immediately after preparation. Blind tasting of broth was carried out by a group of 10 judges, each rating the soup on a scale of 1-5, 1 being ‘foul’ and 5 being ‘sublime’.

Results

The totals for the broth scores are seen in Table 1.

Broth with one cook was very salty. With two cooks, there was a tasty broth, but a bland aftertaste. With four cooks, there was a superb taste, with a very tangy, vegetable-rich soup that was well seasoned. Eight cooks created a tasty soup, but with a very strong aftertaste, and finally, 16 cooks made an ‘awful’ soup, over-seasoned, thick, lumpy and over-cooked, and one chef sustained whisk wounds.

Box 1.

Scotch Broth (Traditional) Recipe

Ingredients

Celery, Turnip, Carrot, Onion
Vegetable stock
Lean lamb (chopped)
Pearl barley
Chopped parsley
Salt and Pepper

Procedure

Add the meat to the pan, then add the stock. Dice all the vegetables and add to the pan. Season well. Bring to the boil, then simmer for 2 - 2.5 hours. Finally, add the parsley and serve hot.

No. Cooks	Broth rating					Total
	1	2	3	4	5	
1	5	2	2	1	0	19
2	3	1	3	2	1	27
4	0	1	2	3	4	40
8	2	1	3	3	1	30
16	7	1	2	0	0	15

Table 1. Total broth scores for each of the five concoctions. Totals are the sum of the number of judges multiplied by the broth rating.

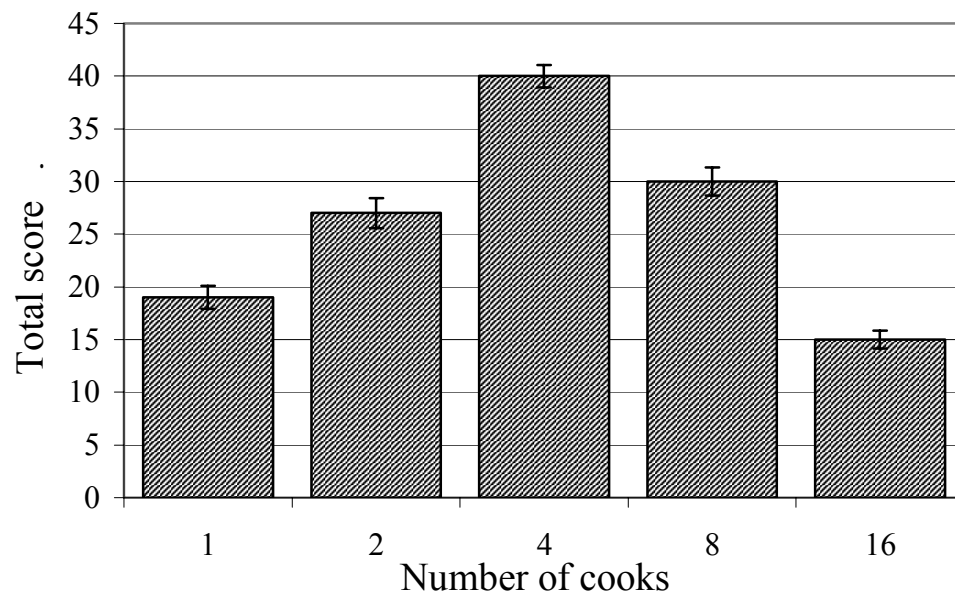


Figure 1. Total broth score for each of the cook groups, with standard deviations.

The quality of the cooking by a number of cooks, as seen in Figure 1, can be described by the equation:

$$p = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

Where: σ is the standard deviation

μ is the mean

p is the probability of a measurement of value x

e is e

1 is 1

2 is 2

and x^2 is something squared

Discussion

A single cook, it seems, gathers no moss... or at least no momentum in the kitchen, and was cooking on a whim with no feedback on the seasoning or general consistency. Two cooks, although making a reasonable broth, constantly bickered and argued like a married couple; two is not always company it seems in this case. Eight cooks engineered a fine broth, but the repeated arguments about seasoning left a bitter after-taste that was not liked by the judges. The sixteen cooks fought continuously, experienced a lack of room to work in and showed a serious lack of coordination which led to time-wasting, abuse, injury and a game of 'pin the skewer on the sous chef'. Four cooks, however, was a different ball game, with a soup-er broth and good discussion throughout the preparation time.

Recent research into thickening agents (Rosett *et al.* 1996) and other modern treatments (Houska *et al.* 2003) might increase broth quality for the future, and decrease the number of cooks that can safely cook in the kitchen. The gender of the cooks was not investigated in this study, and was kept secret from the judges to reduce bias, but work may have to be carried out to investigate whether males have greater or fewer kitchen squabbles than females.

Conclusion

Too many cooks do seem to spoil the broth (in concurrence with Cleland & Clark 2003), but too few cooks also seem to spoil the broth. It is recommended that the proverb be modified to include "too few". It also seems to suggest that many hands don't make light work, although further research may be required to prove this.

References

- Cleland, J.G.F. and Clark, A.L. (2003). Delivering the cumulative benefits of triple therapy to improve outcomes in heart failure - Too many cooks will spoil the broth. *Journal of the American College of Cardiology* **42**, 1234-1237.
- Houska, M., Sun, D.W., Landfeld, A. and Zhang, Z.H. (2003). Experimental study of vacuum cooling of cooked beef in soup. *Journal of Food Engineering* **59**, 105-110.
- Rosett, T.R., Kendregan, S.L., Gao, Y., Schmidt, S.J., and Klein, B.P. (1996). Thickening agents effects on sodium binding and other taste qualities of soup systems. *Journal of Food Science* **61**, 1099-1104.

Discovery corner



NEW SPECIES OF LICHEN found on a roof in England - could be man's new best friend.

We are calling it the West Highland white lichen (*Collema canis yappus*) because of its close resemblance to the canine breed.

Often found in wet and damp regions, and does not need to be taken for walks. For good company, this is a highly recommended lichen.

We want to know your discoveries. E-mail us at: letters@null-hypothesis.co.uk

I really wish I hadn't...

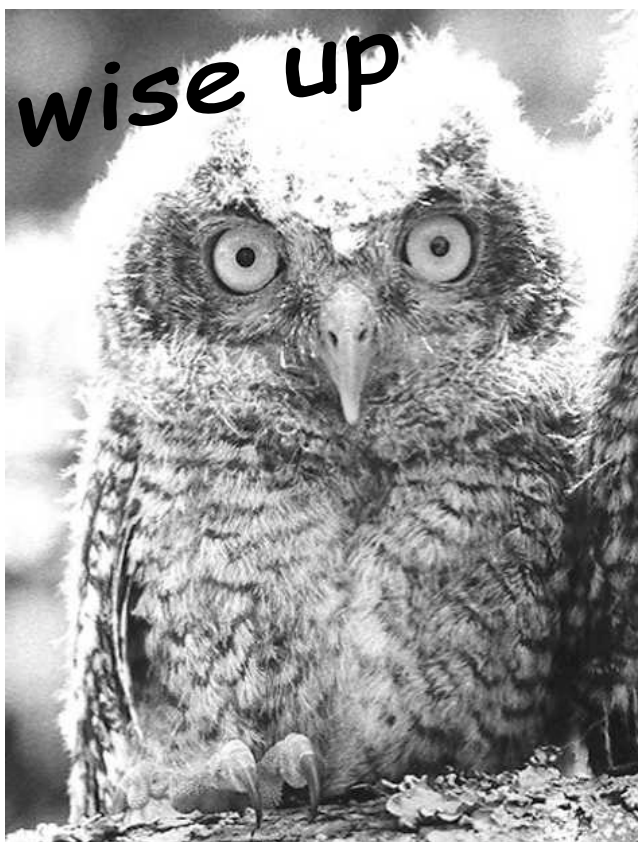
By Andrew Impey, Biological Sciences, University of Bristol, Bristol, BS8 1UG

The mission was easy - under cover of darkness, drive to some lakes near an RAF base and record what ducks get up to at night. Simple, what could possibly go wrong? Yes it was winter and yes it was freezing cold, but science is a quest for knowledge, at least that's what it said on the Ph.D. self-help tape. It only cost £5.99 yet within 30 minutes it had me truly believing that duck counting was of vital importance to national security. Fieldwork is all about mental strength, a constant battle between good and evil. (i.e. being in the pub or not)... So it was a cold, wet night and the ducks were up to all sorts of dodgy stuff. Then, with no warning, with the stealth of a stealth-like creature and as cunning as a cunning fox, the police appeared. What was I doing near an RAF base at 2 a.m. wearing combat gear, a balaclava, carrying a high-powered torch and a notebook? Counting ducks of course! The 'boys in blue' warned me that if I was to avoid being detained, I'd have to come up with a better story than ducks. Perhaps I should have said I was picking mushrooms, or searching for my lost kitten called Derek, or maybe even just out for an evening stroll. In the space of just three minutes I had metamorphosed from a student - cheeky scoundrel - weirdo - drunk - duck rustler - freak - possible terrorist to be arrested at gunpoint! And another thing, just how was I able to see these ducks? "With my night-vision equipment officer." Now in hindsight, I really wish I hadn't said that.....!



Do you have a nightmare research story? Have you destroyed thousands of pounds worth of equipment in one go? What have you done in science that you really wish you hadn't?

E-mail us: letters@null-hypothesis.co.uk



Whatever career you're considering, you'd be **wise** to consult the careers service.

Practical help, information, jobs and much more. A range of events this term to help you make sense of the job market.

Coming up this month....

AUTUMN FAIR

13 October 11.30-4pm
Students' Union

ENGINEERING, SCIENCE & IT FAIR

20 October 12-4pm
Wills Building

www.bris.ac.uk/cas

In next month's issue:

How your goldfish could make you a millionaire
Important news on how to best eat your stir-frys
Another *Paper* and '*Thing*' of the month

ON SALE: **EARLY NOVEMBER...**

Visit our website:

www.null-hypothesis.co.uk

The website has details on how to contact us regarding any aspect of this journal, and additional information on contributing, advertising and about *Null Hypothesis*. We look forward to receiving articles, short commentaries, interesting anecdotes, quirky papers, letters, and other musings from anyone interested in our journal. We shall endeavour to reply to all such mailings.

Contact us on: letters@null-hypothesis.co.uk

Prof's page

Dear Readers,

It gives me great pleasure to welcome you to the inaugural issue of *Null Hypothesis*.

For many years now I have promoted the discipline of spuriology far and wide, and from humble beginnings I have watched the subject blossom. The study of unlikely science is a field that is fast becoming essential to virtually all areas of science and technology. Whoever would have thought that I.Q. was related to an individual's likelihood of being struck by a meteorite, or that midichlorians could be derived analytically from opossums?

Well finally, in the form of this fantastic new journal, we have a forum where all our unlikely findings can reach a wider audience across academic communities and beyond. As honorary president of the *International Triumvirate for Fictitious Catechisms* it is my great pleasure to preside over *Null Hypothesis*, and read about all the marvellous advances in the field.

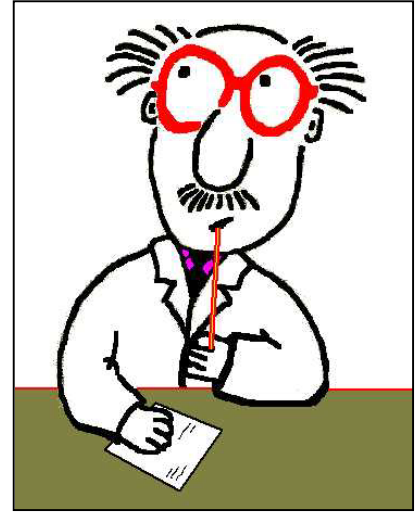
Yours with great respect and in anticipation of your support and submissions,

Professor H.O. Null

And finally...

A Frenchman, Alain Jourden, has won the world 'snail spitting' championships, held last month. The winning spit saw him cast one snail 9.38 meters, but was not quite enough to beat his own world record of a rather incredible 10.4m.

Contestants have three attempts, and can take a 20-meter run-up. After winning, he said he had trained very hard during the week leading up to the competition, and had practised "several spits a day".



Prof. H.O. Null, *DAS, D.Litt., FIMS, FRS*

What's on:

Space detectives: Investigating our solar system

Throughout October, Science Museum, London

Find out more about the mysteries of planets, moons and comets.

See: www.sciencemuseum.org.uk/antenna/space/index.asp

Bristol Festival of Nature

9 - 31 October, Bristol

Filmshows, exhibitions, talks, and competitions for all ages and interests.

See: www.festivalofnature.org

Richard Owen - The man who invented dinosaurs

Until 31 October, Natural History Museum, London

Celebrate the life of Richard Owen, born 200 years ago this year, and the man who gave us the Natural History Museum.

See: www.nhm.ac.uk/owen

We want to hear from you! Send your letters and comments to us. If so, e-mail us on:

letters@null-hypothesis.co.uk

Puzzles and miscellaneous

Brain Teasers:

1. There is a 10-digit number. The first digit tells how many zeroes there are in the number. The second digit tells how many ones that are in the number. The third digit tells how many twos there are in the number, and so on. The last number tells how many nines there are in the number. What is this number?
2. Alice got a nice box of chocolates for her birthday, but couldn't decide which piece to eat first. She likes everything but jelly filled ones. According to the box, she has three different coatings (dark, white, or milk chocolate). The centres are either cream, fudge, caramel, or jelly, and all of those except the jelly come plain or with nuts. There are 42 chocolates in the box. Assuming all possible combinations are included equally, what are the odds that Alice won't choose a jelly filled chocolate?
3. What is last member of this series, and what is it showing:
PG-PA-HGB-TA-SZ-MH-?

Caption competition:

Think of something appropriate for the picture below, then let us know what it is! Visit our website for a full colour version.



Answers to this month's questions and the winning caption will appear here in the next issue. Send your caption competition answers to: puzzles@null-hypothesis.co.uk

Instructions for authors:

We welcome papers, with or without photographs, illustrations and figures, from all fields of science, technology, mathematics, medicine, humanities, psychology and sociology. Papers should take the form of research results, typically consisting of an introduction, methods, results, discussion and references. Abstract and conclusions are optional. They can be up to 2000 words in length, and include the names of all authors, with institutions and addresses. Send finished papers to:

articles@null-hypothesis.co.uk

About us:

Null Hypothesis is a monthly journal. Articles reflect the views of the authors, and not the official views of the publication, the editorial staff or the owners. We take great care to ensure that all aspects of *Null Hypothesis* are accurate, however, we accept no liability for any misprint or mistakes that appear in this journal. The editors reserve the right to shorten or modify any letter or material submitted for publication. Articles may be reproduced with permission.

Directors & Senior editors:

David Hall, Andrew Impey, Mark Steer

Produced by:

MAD productions



Null Hypothesis

Volume 1, Issue 1 - October 2004

www.null-hypothesis.co.uk