

## Peter W. Lucas

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### Present Position

*Professor* Department of Bioclinical Sciences, Kuwait University

**Previous Positions:** Professor (2005-2010), Anthropology Department, George Washington University; Professor (1996-2005), Anatomy Department, University of Hong Kong; Senior Lecturer, Anatomy Department, University of Hong Kong (1992-6); Senior Lecturer, Anatomy Department, National University of Singapore (1988-1992); Lecturer, Anatomy Department, National University of Singapore (1983-8); Medical Research Council (GB) postdoctoral training fellowship at the Unit of Anatomy in relation to Dentistry, Guy's Hospital London (1980-3); Medical Research Council (GB) postgraduate studentship at University College London (1976-80).

**Honorary Position:** Research Professor, Anthropology Department, George Washington University

### Degrees

1976 *B.Sc. Hons. 1<sup>st</sup> Class* Anthropology (University College London)  
1980 *Ph.D.* Physical Anthropology (University of London)  
2002 *D.Sc.* Comparative Oral Biology: Form and Function (University of London)

### Academic honours

**July 1976** Daryll Forde Award for Anthropology (top undergraduate prize in Anthropology, University College London)

**May-June 1980** Newland-Pedley fellowship (Guy's Hospital, London: awarded for receiving an MRC fellowship)

**May 1996** Best Teacher in Anatomy (University of Hong Kong: voted for by medical students)

**July 1998** Outstanding Researcher award (University of Hong Kong: awarded by the vice-chancellor, value HK\$500,000, awarded for 'excellent' rating on the results of an RGC Grant)

**Reviewed manuscripts for:** *Acta Biomaterialia, Acta Odontologica Scandinavica, Advanced Biomaterials, African Journal of Biotechnology, Agricultural and Forest Entomology, American Journal of Botany, American Journal of Physical Anthropology, American Journal of Primatology, American Naturalist, Anatomical Record, Animal Behavior, Archives of Oral Biology, Australian Journal of Botany, Behavioral Ecology and Sociobiology, Biological Journal of the Linnaean Society, Biological Reviews, Biology Letters, Brain, Behavior and Evolution, British Journal of Nutrition, Cereal Chemistry, Chemical Senses, Current Anthropology, European Journal of Oral Sciences, Flavour, Folia Primatologica, Food Hydrocolloids, Functional Ecology, Integrative and Comparative Biology, International Journal of Primatology, Journal of Anatomy, Journal of Archeological Science, Journal of Dental Research, Journal of Experimental Biology, Journal of Food Science, Journal of Human Evolution, Journal of Materials Science, Journal of Morphology, Journal of Oral Rehabilitation, Journal of Orofacial Pain, Journal of Texture Studies, Journal of the Royal Society Interface, Journal of Theoretical Biology, Journal of Tropical Ecology, Journal of Tropical Forest Science, Journal of Zoology, Nature, Physiology & Behavior, Proceedings of the National Academy of Sciences, USA, Proceedings of the Royal Society London (both series A [Physical Sciences] & B [Biological Sciences]), Public Health and Nutrition, Scanning Microscopy, Science, Singapore Medical Journal, South African Journal of Science, The New Phytologist, Trends in Food Science and Technology & Der Zoologische Anzeiger.*

**Reviewed grants for:** *National Science Foundation, National Geographic Society, L.S.B. Leakey Foundation, Wellcome Trust, BBSRC (UK), NERC (UK), Australian Research Council (small grants scheme) and Croucher Foundation (Hong Kong)*

## Publications

**Ph.D. Thesis:** *Adaptation and Form of the Mammalian Dentition with special reference to Primates and the Evolution of Man.* May 1980, University of London.

## Books

1. **Lucas PW** (2004) *How Teeth Work* A research-level book that aimed to be a definitive statement on oral function. Cambridge University Press. 372 pages. **[In 2007, this appeared in paperback]**  
**CUP Website:** <http://www.cambridge.org/aus/catalogue/catalogue.asp?isbn=0521562368>  
**Principal reviews of this book:** *Nature* (2004) 431: 400-401 and *Science* (2004) 306: 2045.  
Important support was given by: Sutherland WJ (2005) The best solution. *Nature* 435: 569.
2. Prinz JF, van Boekel T, de Wijk RA & **Lucas PW** (in preparation) *Making Sense of Food.* Cambridge University Press.

## Book Chapters and Contributions

3. **Lucas PW** (1980) Biomaterials as foods. In: *The Mechanical Properties of Biological Materials* (eds. JFV Vincent & JD Currey), pp. 463-464. Cambridge University Press, Cambridge.
4. **Lucas PW** (1982) Basic principles of tooth design. In: *Teeth: Form, Function and Evolution* (ed. B Kurtén), pp. 154-162. Columbia University Press, New York.
5. \***Lucas PW** and Luke DA. 1984. Chewing it over - basic principles of food breakdown. In: *Food Acquisition and Processing in Primates* (eds. DJ Chivers, BA Wood & A Bilsborough), pp. 283-302. Plenum Press, New York.
6. **Lucas PW**, Corlett RT & Luke DA (1986) Sexual dimorphism of teeth in anthropoid primates. In: *Sexual Dimorphism in Living and Fossil Primates* (eds. M Pickford & AB Chiarelli), pp. 23-39. Il Sedicismo, Firenze. [reprint of journal article 14]
7. **Lucas PW**, Corlett RT & Luke DA (1986) New approach to postcanine tooth size applied to Plio-pleistocene hominids. In: *Primate Evolution* (eds. JG Else & PC Lee), pp. 191-201. Cambridge University Press, Cambridge.
8. Heath MR. & **Lucas PW** (1988) Oral perception of texture. In: *Food Structure - Its Creation and Evaluation* (eds. JMV Blanchard & JR Mitchell) , pp. 465-481. Butterworths, London.
9. **Lucas PW** (1989) A new theory relating seed processing by primates to their relative tooth sizes. In: *The Growing Scope of Human Biology* (eds. LH Schmitt, L Freedman & NW Bruce), pp. 37-49. Centre for Human Biology, University of Western Australia, Perth.
10. **Lucas PW** & Corlett RT (1991) Quantitative aspects of the relationship between dentitions and diets. In: *Feeding and the Texture of Food* (eds. JFV Vincent & PJ Lillford), pp. 93-121. Cambridge University Press, Cambridge.
11. **Lucas PW** (1991) Fundamental physical properties of fruits and seeds in the diet of Southeast Asian primates In: *Primate Today* (eds. A Ehara *et al.*), pp. 125-128. Elsevier, Amsterdam.
12. **Lucas PW**, Arrandale S, Henderson L & Peters CR (1991) Forces produced by orang-utans with their teeth. In: *Primate Today* (eds. A Ehara *et al.*), pp. 705-706. Elsevier, Amsterdam.
13. **Lucas PW** (1994) Categorisation of food items for oral processing. In: *The Digestive System in Mammals* (eds. DJ Chivers & P Langer), pp. 197-218. Cambridge University Press, Cambridge.

14. **Lucas PW** & Teaford MF (1994) Functional morphology of colobine teeth. In: *Colobine Monkeys: Their Ecology, Behaviour and Evolution* (eds. AG Davies & JF Oates), pp. 171-203. Cambridge University Press, Cambridge.
15. Williamson L & **Lucas PW** (1994) The effect of moisture content on the mechanical properties of a seed shell. In: *Plant Biomechanics* (eds. B Thibeaudeau), p. 195. Elsevier, Paris,
16. **Lucas PW**, Cheng PY, Choong MF, Darvell BW, Hill DA, Lee PKD, Tan HTW, Turner IM, Pereira BP, Peters CR, Williamson L & Yuen TDB (1997) The toughness of plant tissues. In: *Proceedings of Plant Biomechanics 97* (eds. G Jeronimidis & JFV Vincent), pp. 109-114. Centre for Biomimetics, University of Reading, England.
17. **Lucas PW** & Peters CR (2000) Function of postcanine tooth shape in mammals. In: *Development, Function and Evolution of Teeth* (eds. MF Teaford, MM Smith & M Ferguson), pp. 482-489. Cambridge University Press, Cambridge.
18. **Lucas PW**, Darvell BW, Lee PKD, Yamashita N & Yuen TDB (2000) A portable mechanical field tester for ecological studies. In: *Plant Biomechanics 2000* (eds. H-C Spatz & T Speck), pp. 541-545. Georg Thieme Verlag, Stuttgart.
19. **Lucas PW**, Osorio D, Yamashita N, Prinz JF, Dominy NJ & Darvell BW (2003) Dietary analysis I: Physics. In: *Field and Laboratory Methods in Primatology* (eds. J Setchell & D Curtis), pp. 184-198. Cambridge University Press, Cambridge.
20. **Lucas PW**, Corlett RT, Dominy NJ, Essackjee HC, Riba-Hernandez P, Stoner KE & Yamashita N (2003) Dietary analysis II: Chemistry. In: *Field and Laboratory Methods in Primatology* (eds. J Setchell & D Curtis), pp. 199-213. Cambridge University Press, Cambridge.
21. **Lucas PW** (2004) Plant mechanics and primate dental adaptations: an overview. In: *Shaping Primate Evolution* (eds. F Anapol, N Jablonski & RZ German), pp. 193-205. Cambridge University Press, Cambridge.
22. **Lucas PW** (2006) Facial dwarfing and dental crowding in relation to diet. In *Integrative Approaches to Human Health and Evolution* (eds. TG Bromage, A Vidal, E Aguirre & A Perez-Ochoa), pp. 74-82. Amsterdam: Elsevier Press (International Congress Series).
23. **Lucas PW**, Dominy NJ, Osorio D, Peterson-Pereira W, Riba-Hernandez P, Solis-Madriral S, Stoner KE & Yamashita N (2006) Perspectives on color vision. In *Primate Origins* (eds. MJ Ravosa & M Dagosto), pp. 805-819. Kluwer.
24. **Lucas PW** (2007) The evolution of the hominin diet from a dental functional perspective. In: *The Evolution of Hominin Diets: The Known, the Unknown, and the Unknowable* (ed. PS Ungar), pp. 31-38. Oxford University Press.
25. Dominy NJ, **Lucas PW** & Supardi Noor N (2007) Primate sensory systems and foraging behavior. In: *Feeding Ecology in Apes and other Primates* (eds. G Hohmann, M Robbins & C Boesch) pp. 489-509. Cambridge University Press, Cambridge.
26. Sui ZQ, Corke H, Oyen ML & **Lucas PW** (2007) Fracture and energy partitioning in uncooked and cooked noodles. In *Mechanics of Biological and Bio-Inspired Materials* (eds. C Viney, K Katti, C Hellmich & U Wegst). Materials Research Society Symposium Proceedings **975E**, Warrendale, PA. [nominated for poster prize at MRS Fall 2006 meeting]
27. **Lucas PW**, Cook R & Lowrey TK (2007) How baby plants avoid getting hurt and blossom into adulthood: the story of a tropical seed. In *Mechanics of Biological and Bio-Inspired Materials* (eds. C Viney, K Katti, C Hellmich & U Wegst). Materials Research Society Symposium Proceedings **975E**, Warrendale, PA. [voted Outstanding Research Paper in the proceedings of MRS symposium DD]
28. Agrawal KR, Ang KY, Sui Z, Tan HTW & **Lucas PW** (2008) Methods of ingestion and incisal designs. In: *Technique and Application in Dental Anthropology* (eds. JD Irish & GC Nelson), pp. 349-363. Cambridge: Cambridge University Press.

29. **Lucas PW**, Sui ZQ, Ang KY, Tan HTW, King SH, Sadler B & Peri N (2009) Meals vs. snacks and the human dentition and diet during the Palaeolithic. In: *The Evolution of Hominid Diets: Integrating Approaches to the Study of Palaeolithic Subsistence* (eds. J-J Hublin & MP Richards), pp. 31-41. Dordrecht: Springer.
30. Patel ND, Grosse I, Sweeney D, Strait DS, **Lucas PW**, Wright B, Godfrey LR (2009) An efficient method for predicting fracture of hard food source. In: *ASME International Mechanical Engineering Congress and Exposition, Proceedings*. Vol 2: 521-528.
31. Lucas PW, Constantino PJ, Lee J J-W, Chai H, Lee W-H, Dominy NJ (2009) Primate dental enamel: what it says about diet. In: *Interdisciplinary Dental Morphology* (eds. T Koppe, G Meyer, KW Alt), Vol. 13: 44-48. Frontiers of Oral Biology. Karger, Basel.
32. Vinyard CJ, Wall CE, Williams SH, Mork AL, Garner BA, César de Oliveira Melo L, Valença-Montenegro MM, Bernardo Maranhao Valle Y, Oliveira Monteiro da Cruz MA, **Lucas PW**, Schmitt D, Taylor AB & Hylander WL (2009) The evolutionary morphology of tree gouging in marmosets. In *The Smallest Anthropoids: The Marmoset/Callimico Radiation* (eds. LC Davis, SM Ford & LM Porter), pp. 395-409. Springer: New York.
33. **Lucas PW**. Foraging behavior of tropical primates. In: *Encyclopedia of Life Support Systems* (Eolss Publishers Co. Ltd.). (<http://www.eolss.net/>)
34. Ungar PS & **Lucas PW** (2010) Tooth form and function in biological anthropology. In: *A Companion to Biological Anthropology* (Ed. C.S. Larsen), pp. 516-529. Wiley-Blackwell: Chichester.
35. **Lucas PW**, Osorio D, Yamashita N, Prinz JF, Dominy NJ & Darvell BW. (2011) Dietary analysis I: Physics. In: *Field and Laboratory Methods in Primatology 2<sup>nd</sup> Edn.* (eds. J Setchell & D Curtis), pp. 237-254. Cambridge University Press, Cambridge.
36. **Lucas PW**, Corlett RT, Dominy NJ, Essackjee HC, Ramsden L, Riba-Hernandez P, Stoner KE & Yamashita N. (2011) Dietary analysis II: Chemistry. In: *Field and Laboratory Methods in Primatology 2<sup>nd</sup> Edn.* (eds. J Setchell & D Curtis), pp. 255-270. Cambridge University Press, Cambridge.

### Journal Articles (peer-reviewed)

1. **Lucas PW** (1979) The dental-dietary adaptations of mammals. *N Jb Geol Palaont* 8: 486-512.
2. **Lucas PW** (1981) An analysis of canine size and jaw shape in some Old and New World non-human primates. *J Zool* 195: 437-448.
3. **Lucas PW** (1982) An analysis of the canine tooth size of old world higher primates in relation to facial length and body weight. *Archs Oral Biol* 27: 493-496.
4. **Lucas PW** & Luke DA (1983) Methods for analysing the breakdown of food during human mastication. *Archs Oral Biol* 28: 813-819.
5. **Lucas PW** & Luke DA (1983) Computer simulation of the breakdown of carrot particles during human mastication. *Archs Oral Biol* 28: 821-826.
6. Luke DA & **Lucas PW** (1983) The significance of cusps. *J Oral Rehabil* 10: 197-210.
7. **Lucas PW** & Luke DA (1984) Optimal mouthful for food comminution in human mastication. *Archs Oral Biol* 29: 205-210.
8. **Lucas PW**, Corlett RT & Luke DA (1985) Plio-pleistocene hominids: an approach combining masticatory and ecological analysis. *J Hum Evol* 14: 187-202.
9. Luke DA & **Lucas PW** (1985) Chewing efficiency in relation to occlusal and other variations in the dentition. *Brit Dent J* 159: 401-403.
10. **Lucas PW**, Ow RKK, Ritchie GM, Chew CL & Keng SB (1986) Relationship between jaw movement and food breakdown in human mastication. *J Dent Res* 65: 400-404.

11. **Lucas PW** & Luke DA (1986) Is food particle size a criterion for the initiation of swallowing? *J Oral Rehabil* 13: 127-136.
12. **Lucas PW**, Luke DA, Voon FCT, Chew CL & Ow RKK (1986) Food breakdown patterns produced by human subjects possessing artificial and natural teeth. *J Oral Rehabil* 13: 205-214.
13. Voon FCT, **Lucas PW**, Luke DA & Chew KL (1986) A simulation approach to understanding the masticatory process. *J Theoret Biol* 119: 251-262.]
14. **Lucas PW**, Corlett RT & Luke DA (1986) Sexual dimorphism of teeth in anthropoid primates. *Hum Evol* 1: 23-39.
15. **Lucas PW**, Corlett RT & Luke DA (1986) Postcanine tooth size and diet in anthropoids. *Z Morph Anthropol* 76: 253-276.
16. **Lucas PW** & Loh HS (1986) Are the incremental lines in human cementum laid down annually? *Ann Acad Med Sing* 15: 384-386.
17. **Lucas PW**, Luke DA, Voon FCT, Chew CL & Ow RKK (1987) Patrones de fragmentacion de los alimentos en sujetos con denticion natural y en portadores de dientes artificiales. *Arch Odonto-Estomatol* 3: 269-275. [translation of journal article 12 into Spanish]
18. Heath MR & **Lucas PW** (1987) Mastication - the need for collaboration. *J Texture Stud* 18: 112-123.
19. Chew CL **Lucas PW**, Keng SB, Ow RKK & Tay DKL (1988) The effect of food texture on the replication of jaw movements in mastication. *J Dent* 16: 210-214.
20. **Lucas PW**, Hails CJ & Corlett RT (1988) Status of the banded langur (*Presbytis femoralis femoralis*) in Singapore. *Primate Conservation* 9: 136-138.
21. **Lucas PW** (1989) Significance of *Mezzettia leptopoda* fruits eaten by orang-utans for dental microwear analysis. *Folia Primatol* 52: 185-190.
22. Corlett RT & **Lucas PW** (1989) Consumption of *Camposperma auriculatum* fruit by vertebrates in Singapore. *Malay Nat J* 42: 273-276.
23. Corlett RT & **Lucas PW** (1990) Alternative seed-handling strategies in primates: seed-spitting by long-tailed macaques. *Oecologia* 82: 166-171.
24. **Lucas PW** & Pereira B (1990) Estimation of the fracture toughness of leaves. *Func Ecol* 4: 819-820.
25. **Lucas PW** & Pereira B (1991) Thickness effect in cutting systems. *J Mater Sci Lett* 10: 235-236.
26. **Lucas PW**, Lowrey TK, Pereira B, Sarafis V & Kuhn W (1991) The ecology of *Mezzettia leptopoda* Hk. f. et Thoms. (Annonaceae) seeds as viewed from a mechanical perspective. *Func Ecol* 5: 345-353.
27. **Lucas PW**, Choong MF, Tan HTW, Turner IM & Berrick AJ (1991) Fracture toughness of the leaf of the dicotyledonous angiosperm, *Calophyllum inophyllum* L. *Phil Trans R Soc Lond B* 334: 95-106.
28. Diaz-Tay J, Jayasinghe N, **Lucas PW**, McCallum JC & Jones JT (1991) Association between surface electromyography of human jaw closing muscle and quantified food breakdown. *Archs Oral Biol* 36: 893-898.
29. **Lucas PW** & Corlett RT (1991) The relationship between the diet of *Macaca fascicularis* and forest phenology. *Folia Primatol* 57: 201-215.
30. **Lucas PW** & Corlett RT (1992) Notes on the treatment of palm fruits by long-tailed macaques (*Macaca fascicularis* Raffles). *Principes* 36: 45-48.
31. Choong MF, **Lucas PW**, Ong JYS, Pereira BP, Tan HTW & Turner IM (1992) Leaf fracture toughness and sclerophylly: their correlations and ecological implications. *New Phytol* 121: 597-610.
32. **Lucas PW**, Oates CG & Lee WP (1993) Fracture toughness of mung bean gels. *J Mater Sci* 28: 1137-1142.

33. Sim BJ, **Lucas PW**, Pereira BP, Oates CG (1993) Mechanical and sensory assessment of the texture of refrigerator-stored spring roll pastry. *J Texture Stud* 24: 27-44.
34. **Lucas PW** (1993) Introduction. *Int J Primatol* 14: 201-205.
35. Turner IM, Choong MF, Tan HTW & **Lucas PW** (1993) How tough are sclerophylls? *Ann Bot* 71: 343-345.
36. Oates CG, **Lucas PW** & Lee WP (1993) How brittle are gels? *Carb Poly* 20: 189-194.
37. **Lucas PW**, Peters CR & Arrandale S (1994) Seed-breaking forces exerted by orang-utans with their teeth in captivity and a new technique for estimating forces produced in the wild. *Am J Phys Anthropol* 94: 365-378.
38. Williamson L & **Lucas PW** (1995) The effect of moisture content on the mechanical properties of a seed shell. *J Mater Sci* 30: 162-166.
39. **Lucas PW** (1995) Long-tailed macaques. [issue on Bukit Timah Nature Reserve: *Rainforest in the City*] *Gardens Bull Singapore*, suppl. 3: 105-119.
40. Corlett RT & **Lucas PW** (1995) Mammals. [issue on Bukit Timah Nature Reserve: *Rainforest in the City*] *Gardens Bull Singapore*, suppl. 3: 93-104.
41. **Lucas PW**, Darvell BW, Lee PKD, Yuen TDB & Choong MF (1995) The toughness of plant cell walls. *Phil Trans R Soc Lond B* 348: 363-372.
42. Prinz JF & **Lucas PW** (1995) Swallow thresholds in humans. *Archs Oral Biol* 40: 401-403.
43. **Lucas PW** & Teaford MF (1995) Significance of silica in leaves eaten by long-tailed macaques (*Macaca fascicularis*). *Folia Primatol* 64: 30-36.
44. Hill DA, **Lucas PW** & Cheng PY (1995) Bite forces used by Japanese macaques (*Macaca fuscata yakui*) on Yakushima Island, Japan to open aphid-induced galls on *Distylium racemosum* (Hamamelidaceae). *J Zool* 237: 57-63.
45. Hill DA & **Lucas PW** (1996) Toughness and fiber content of major leaf foods of wild Japanese macaques (*Macaca fuscata yakui*) in Yakushima. *Am J Primatol* 38: 221-231.
46. Darvell BW, Lee PKD, Yuen TDB & **Lucas PW** (1996) A portable fracture toughness tester for biological materials. *Meas Sci Technol* 7: 954-962.
47. Pereira BP, **Lucas PW** & Teoh SH (1997) Ranking the fracture toughness of mammalian soft tissues using the scissors cutting test. *J Biomech* 30: 91-94.
48. **Lucas PW**, Tan HTW & Cheng PY (1997) The toughness of secondary cell wall and woody tissue. *Phil Trans R Soc Lond B* 352: 341-352.
49. Agrawal KR, **Lucas PW**, Prinz JF & Bruce IC (1997) Mechanical properties of foods responsible for resisting food breakdown in the human mouth. *Archs Oral Biol* 42: 1-9.
50. Prinz JF & **Lucas PW** (1997) Mastication and swallowing: an optimization model. *Proc R Soc Lond B* 264: 1715-1721.
51. **Lucas PW**, Lenstrup M, Prinz J, Williamson D, Yip H & Tipoe G (1997) Language as a barrier to the acquisition of anatomical knowledge. *Med Ed* 31: 81-86.
52. Prinz JF, Yip HY, Tipoe GL, **Lucas PW** & Lenstrup M (1998) Techniques for rapid quantitative assessment of activity levels in small-group tutorials. *Med Ed* 32: 422-425.
53. **Lucas PW** & Corlett RT (1998) Seed dispersal by long-tailed macaques. *Am J Primatol* 45: 29-44.
54. **Lucas PW**, Darvell BW, Lee PKD, Yuen TDB & Choong MF (1998) Colour cues for leaf food selection by long-tailed macaques (*Macaca fascicularis*) with a new suggestion for the evolution of trichromatic colour vision. *Folia Primatol* 69: 139-152.
55. Agrawal KR, **Lucas PW**, Bruce IC & Prinz JF (1998) Food properties that influence neuromuscular activity during human mastication. *J Dent Res* 77: 1931-1938.
56. Agrawal KR, **Lucas PW** & Bruce IC (2000) The effect of food fragmentation index on mandibular closing angle in human mastication. *Archs Oral Biol* 45: 577-584.

57. Becker P, Choong MF, **Lucas PW**, Turner IM, Tyree MT, Wong SC & Yong JWH (2000) A comparison of leaf form between tree species from two tropical rain forests in Brunei. *Biotropica* 32: 53-61.
58. **Lucas PW**, Turner IM, Dominy NJ & Yamashita N (2000) Mechanical defences to herbivory. *Ann Bot* 86: 913-920.
59. Prinz JF & **Lucas PW** (2000) Saliva tannin interactions. *J Oral Rehabil* 27: 991-994.
60. **Lucas PW**, Beta T, Darvell BW, Dominy NJ, Essackjee HC, Lee PKD, Osorio D, Ramsden L, Yamashita N & Yuen TDB (2001) Field kit to characterize physical, chemical and spatial aspects of potential foods of primates. *Folia Primatol* 72: 11-15.
61. Dominy NJ & **Lucas PW** (2001) The ecological value of trichromatic vision to primates. *Nature* 410: 383-386.
62. Prinz JF & **Lucas PW** (2001) 'The first bite of the cherry' - intra-oral manipulation prior to the first bite in humans. *J Oral Rehabil* 28: 614-617.
63. Dominy NJ, **Lucas PW**, Osorio D & Yamashita N (2001) The sensory ecology of primate food perception. *Evol Anthropol* 10: 171-186.
64. **Lucas PW**, Prinz JF, Agrawal KR & Bruce IM (2002) Food physics and oral physiology. *Food Qual Pref* 13: 203-213.
65. Dominy NJ, **Lucas PW**, Ramsden L, Riba-Hernandez P, Stoner KE & Turner IM (2002) Why are young leaves red? *Oikos* 98: 163-176.
66. Agrawal KR & **Lucas PW** (2002) A review: neural control of mastication in humans as influenced by food texture. *Indian J Dent Res* 13: 125-134.
67. Agrawal KR & **Lucas PW** (2003) Mechanics of the first bite. *Proc R Soc Lond B* 270: 1277-1282.
68. Riba-Hernandez P, Stoner KE & **Lucas PW** (2003) Preferences for different sugars in fruits consumed by spider monkeys (*Ateles geoffroyi*) in tropical humid forest in Costa Rica. *J Trop Ecol* 19: 719-726.
69. Dominy NJ, **Lucas PW** & Wright SJ (2003) Measuring the mechanics and chemistry of rain forest leaves: canopy and understory compared. *J Exp Bot* 54: 2007-2014.
70. **Lucas PW**, Dominy NJ, Riba-Hernandez P, Stoner KE, Yamashita N, Loría-Calderón E, Petersen-Pereira W, Rojas-Durán Y, Salas-Pena R, Solis-Madrigal S, Osorio D & Darvell BW (2003) Evolution and function of routine trichromatic vision in primates. *Evolution* 57: 2636-2643.
71. Dominy NJ & **Lucas PW** (2004) Significance of color, calories and climate to the visual ecology of catarrhines. *Am J Primatol* 62: 189-207.
72. **Lucas PW**, Prinz JF, Agrawal KR & Bruce IC (2004) Food texture and its effect on ingestion, mastication and swallowing. *J Texture Stud* 35: 159-170.
73. Yamashita N, Stoner KE, Riba-Hernandez P, Dominy NJ & **Lucas PW** (2005) Light levels used during feeding by primate species with different color vision phenotypes. *Behav Ecol Sociobiol* 58: 618-629.
74. Stoner KE, Riba-Hernández P & **Lucas PW** (2005) Comparative use of color vision for frugivory by sympatric species of platyrrhines. *Am J Primatol* 67: 399-409.
75. Riba-Hernández P, Stoner KE & **Lucas PW** (2005) Sugar concentration of fruits and their detection via color in the Central American spider monkey (*Ateles geoffroyi*). *Am J Primatol* 67: 411-423.
76. Teaford MF, **Lucas PW**, Ungar PS & Glander KE (2006) Mechanical defenses in leaves eaten by Costa Rican howling monkeys (*Alouatta palliata*). *Am J Phys Anthropol* 129: 99-104.
77. Cheng ACO, Yuen HKL, **Lucas PW**, Lam DSC & So KF (2006) Characterization and localization of the supraorbital and frontal exits of the supraorbital nerve in Chinese – an anatomical study. *Ophthalm Plast Reconstr Surg* 22: 209-213.

78. Sui ZQ, Agrawal KR, Corke H & **Lucas PW** (2006) Biting efficiency in relation to incisal angulation. *Archs Oral Biol* 51: 491-497.
79. Ang KY, **Lucas PW** & Tan HTW (2006) Incisal orientation and biting efficiency. *J Hum Evol* 50: 663-672.
80. **Lucas PW**, Ang KY, Agrawal KR, Prinz JF & Dominy NJ (2006) A brief review of the recent evolution of the human mouth in physiological and nutritional contexts. *Physiol Behav* 89: 36-38.
81. Sui ZQ, **Lucas PW** & Corke H (2006) Optimal cooking time of noodles related to their notch-sensitivity. *J Texture Stud* 37: 428-441.
82. Ang KY, **Lucas PW** & Tan HTW (2008) A novel way of measuring the fracture toughness of leaves and other thin films using a single inclined razor blade. *New Phytol* 177: 830-837.
83. **Lucas PW**, Constantino P, Wood BA & Lawn BR (2008) Dental enamel as a dietary indicator in mammals. *BioEssays* 30: 374-285.
84. Cheng ACO, Yuen HKL, **Lucas PW**, Lam DSC & So KF (2008) Surgical anatomy of the Chinese orbit – an anatomic study. *Ophthal Plast Reconstr Surg* 24: 136-41.
85. **Lucas PW**, Constantino PJ & Wood BA (2008) Structural and functional trends in tooth morphology within the hominid clade. *J Anat* 212: 486-500.
86. Vogel ER, van Woerden JT, **Lucas PW**, Utami Atmoko SS & van Schaik CP (2008) Functional ecology and evolution of hominoid enamel thickness: *Pan troglodytes schweinfurthii* and *Pongo pygmaeus wurmbii*. *J Hum Evol* 55: 60-74.
87. Dominy NJ, Grubb PJ, Jackson RV, **Lucas PW**, Metcalfe DJ, Svenning J-C & Turner IM (2008) In tropical lowland rain forests monocots have tougher leaves than dicots, and include a new kind of tough leaf. *Ann Bot* 101: 1363-1377.
88. Grubb PJ, Jackson RV, Barberis IM, Bee JN, Coomes DA, Dominy NJ, De La Fuente MAS, **Lucas PW**, Metcalfe DJ, Svenning J-C, Turner IM & Vargas O (2008) Monocot leaves are eaten less than dicot leaves in tropical lowland rain forests: roles for toughness and leaf presentation. *Ann Bot* 101: 1379-1389.
89. Dominy NJ, Vogel ER, Yeakel JD, Constantino P & **Lucas PW** (2008) Mechanical properties of plant underground storage organs and implications for dietary models of early hominins. *Evol Biol* 35: 159-175.
90. Lawn BR, Lee JJ, Constantino PJ & **Lucas PW** (2009) Predicting failure in mammalian enamel. *J Mech Behav Biomed Mat* 2: 33-42.
91. Strait DS, Weber GW, Neubauer S, Chalk J, Richmond BG, **Lucas PW**, Spencer MA, Schrein C, Dechow PC, Ross CF, Grosse IR, Wright BW, Constantino P, Wood BA, Lawn B, Wang Q, Slice DE, Byron C & Smith AL (2009) The feeding biomechanics and dietary ecology of *Australopithecus africanus*. *Proc Nat Acad Sci* 106: 2124-2129.
92. Lee J J-W, Kwon J-Y, Chai H, **Lucas PW**, Thompson VP & Lawn BR (2009) Fracture modes in human teeth. *J Dent Res* 88: 224-228.
93. Chai H, Lee J J-W, Constantino P, **Lucas PW** & Lawn BR (2009) Remarkable resilience of teeth. *Proc Nat Acad Sci* 106: 7289-7293.
94. Chai H, Lee J J-W, Kwon J-Y, **Lucas PW** & Lawn BR. (2009) A simple model for enamel fracture from margin cracks. *Acta Biomater* 5: 1663-1667.
95. **Lucas PW**, Constantino PJ, Chalk J, Ziscovici C, Wright BW, Fragaszy DM, Hill DA, Lee J J-W, Chai H, Darvell BW, Lee PKD & Yuen TDB (2009) Indentation as a technique to assess the mechanical properties of fallback foods. *Am J Phys Anthropol* 140: 643-652.
96. Constantino PJ, **Lucas PW**, Lee J J-W & Lawn BR (2009) The influence of fallback foods on great ape tooth enamel. *Am J Phys Anthropol* 140: 653-660.
97. Myoung S, Lee J, Constantino P, **Lucas P**, Chai H & Lawn B (2009) Morphology and fracture of enamel. *J Biomech* 42: 1927-1951.



98. Strait DS, Grosse IR, Dechow PC, Smith AL, Wang Q, Weber GW, Neubauer S, Slice DE, Chalk J, Richmond BG, **Lucas PW**, Spencer MA, Schrein C, Wright BW, Byron B, Ross CF (2010) The structural rigidity of the cranium of *Australopithecus africanus*: Implications for diet, dietary adaptations, and the allometry of feeding biomechanics. *Anat Rec* 293: 583-593.
99. Constantino P, Lee J J-W, Chai H, Zipfel B, Ziscovici C, Lawn BR & **Lucas PW** (2010) Antemortem tooth chipping in early hominins can predict bite forces and diet. *Biol Lett* 6:719-722.
100. Lee J J-W, Morris D, Constantino P, Chai H, **Lucas PW**, Smith TM and Lawn BR (2010) Properties of Tooth Enamel in Great Apes. *Acta Biomater* 12: 4560-4565.
101. Onoda Y, Westoby M, Adler PB, Choong AML, Clissold FJ, Cornelissen JHC, Díaz S, Dominy NJ, Elgart A, Enrico L, Fine PV, Howard JJ, Jalili A, Kitajima K, Kurokawa H, **Lucas P**, Markesteijn L, McArthur C, Peeters PJ, Perez-Harguindeguy N, Poorter L, Richards L, Santiago LS, Sosinski Jr EE, Van Bael SA, Warton DI, Wright IJ, Wright SJ & Yamashita N (2011) Global patterns of leaf mechanical properties. *Ecology Letters* 14: 301-312.
102. Constantino PJ, Lee J J-W, Morris D, **Lucas PW**, Hartstone-Rose A, Lee W-K, Dominy NJ, Cunningham A, Wagner M & Lawn BR (2011) Adaptation to hard object eating in sea otters and hominins. *Journal of Human Evolution* 61: 89-96.
103. Lee J J-W, Constantino P, Lucas PW & Lawn BR (2011) Fracture in teeth—a diagnostic for inferring tooth function and diet. *Biological Reviews* 86: 959-974.
104. **Lucas PW**, Gaskins JT, Lowrey TK, Harrison ME, Morrough-Bernard H, Cheyne SE & Begley MR (2012) Evolutionary optimization of material properties of a tropical seed. *Journal of the Royal Society Interface* 9: 34-42.
105. Strait DS, Weber GW, Constantino P, **Lucas PW**, Richmond BG, Spencer MA, Dechow PC, Ross CF, Grosse IF, Wright BW, Wood BA, Hylander WL, Wang Q, Byron C & Slice DE (2012) Microwear, mechanics and the feeding adaptations of *Australopithecus africanus*. *Journal of Human Evolution* 62: 165-168.
106. **Lucas PW** & Omar R. (2012) New perspectives on tooth wear. *International Journal of Dentistry* <http://www.hindawi.com/journals/ijd/2012/287573/>.
107. Constantino P, Lee J, Gerbiq Y, Hartstone-Rose A, Talebi M, Lawn BR & **Lucas PW** (2012). The role of tooth enamel mechanical properties in primate dietary adaptation. *American Journal of Physical Anthropology* 148: 171-177.
108. **Lucas PW**, Copes, L, Constantino PJ, Vogel ER, Chalk J, Talebi M, Landis M & Wagner M (2012) Measuring the toughness of primate foods and its ecological value. *International Journal of Primatology* 33:598–610
109. Constantino PJ, Markham K & **Lucas PW** (2012) Dental chipping as a tool to reconstruct primate diets. *International Journal of Primatology* 33:661-672.
110. Kitajima K, Llorens A-M, Stefanescu C, Vargas Timchenko M, **Lucas P** & Wright SJ (2012) How cellulose-based leaf toughness and lamina density contribute to long leaf lifespans of shade-tolerant species. *The New Phytologist* 195: 640-652.
111. Strait DS, Weber GW, Constantino P, **Lucas PW**, Chalk J, Richmond BG, Spencer MA, Schrein C, Dechow PC, Ross CF, Grosse IF, Wright BW, Wood BA, Hylander WL, Wang Q, Byron C, Slice DE, Smith AL, Smith LC, Wood S, Berthaume M, Dzialo C & Tamvada K. Feeding mechanics, diet and dietary adaptations in early hominins. *American Journal of Physical Anthropology* **Submitted**.
112. **Lucas PW**, Omar R, Al-Fadhalah K, Almusallam AS, Henry AG, Michael S, Arockia Thai L, Watzke J, Strait DS & Atkins AG. Mechanisms and causes of wear in tooth enamel: implications for hominin diets. *Science* **Submitted**.

1. **Lucas PW** (2011) Cooking clue to human dietary diversity. *Proceedings of the National Academy of Sciences USA* 108: 19101-19102. [INVITED COMMENTARY]
2. **Lucas PW** & Omar R (2012) Damaged! A new overview of dental wear. *Archives of Oral Biology* 57: 211-213.[GUEST EDITORIAL]
3. **Lucas PW**. Review of “*Mammal Teeth: Origin, Evolution and Diversity*”, a book by Peter S. Ungar. *American Journal of Physical Anthropology* 147: 678. [BOOK REVIEW]

## Research Grants

### In Singapore

- 1983** Request for *Hard Tissue Cutting Equipment*. S\$20,000 (Singapore Turf Club)
- 1984-7** (with all Department of Prosthetic Dentistry) *Food breakdown in human mastication*. S\$60,000 (Singapore Turf Club) & S\$7,000 (National University of Singapore)
- 1985-7** (with RT Corlett) *Seed dispersal by Macaca fascicularis*. S\$1,000 (National University of Singapore)
- 1988-9** (with all Department of Oral Surgery) *The functional assessment of masticatory ability (jaw movement and electromyography in relation to food comminution)*. S\$74,000 & S\$55,000 (National University of Singapore)
- 1989-91** (with CG Oates) *Physical properties of foods in human and primate diets*. S\$12,000 (National University of Singapore)

### In Hong Kong

- 1993-6** (with CR Peters, Univ. of Georgia) *The mechanical properties of plant foods (fruits, seeds and leaves) with respect to mammalian feeding patterns, with emphasis on the primates and evolution of man*. HK\$566,000 (Research Grants Council of Hong Kong), HK\$122,550 & HK\$70,000 (CRCG of University of Hong Kong) COMPLETION REPORT RATED “EXCELLENT”.
- 1995-7** (with IC Bruce, Dept. of Physiology) *Oral Perception of Texture in Hong Kong Chinese*. HK\$136,000 CRCG of University of Hong Kong.
- 1995-7** (with CG Oates, Dept. of Biochemistry & IM Turner, Department of Botany, Nat. Univ. of Singapore) *Sensory Cues for Feeding by Macaques*. HK\$310,000 Research Grants Council of Hong Kong
- 1995-7** *Action Learning Project* held by English Centre (by D Williamson) with M Lenstrup (research assistant) and Anatomy Department (JF Prinz, PW Lucas, H Yip & G Tipoe); part-share of HK\$400,000 (University Grants Committee of Hong Kong).
- 1997-2001** HK\$1,495,060 *The importance of color vision for foraging strategies of primates and their relationship to the evolution of trichromatic color vision*. Research Grants Council of Hong Kong.
- 1997-2000** Named Collaborator on NSF grant #SBR-9601766 “*Effects of Tooth Use on Tooth Shape, Structure and Wear*” to MF Teaford (Johns Hopkins) and KE Glander (Duke University).
- 1999-2001** *The importance of color vision for foraging strategies of primates and their relationship to the evolution of trichromatic color vision*. US\$15,000 National Geographic Society #6584-99.
- 2000** Two grants for completing data analysis and holding a final symposium on “*The importance of color vision for foraging strategies of primates and their relationship to the evolution of trichromatic color vision*”. HK\$80,000 & HK\$85,000 Croucher Foundation of Hong Kong.
- 2001** *Adaptation of the teeth of primates to diet* HK\$80,000. CRCG of University of Hong Kong.
- 2001-2003** Named Collaborator on *Bark gouging by marmosets*. Grants awarded to CJ Vinyard (Duke University) by National Geographic Society and Leakey Foundation.
- 2004** *Deformation transitions in foods*. HK\$120,000 Seed grant funding (University of Hong Kong). [HK\$110,000 was added from other university sources.]

**In USA**

**2007-2012** *Collaborative Research: Integrative analysis of hominid feeding biomechanics*. PI: BR Richmond; Co-PI: PW Lucas. Funded by NSF HOMINID program for US\$214,000.

**2008-2013** *Integrative Human biology: Dynamics of behavioral shifts in human evolution: brains, bodies and ecology*. PI: BA Wood; Co-PI: PW Lucas and three others. Funded by NSF IGERT program for US\$3.199 million.

**2008-2010** *The fracture modes of human teeth*. PI: PW Lucas; Co-PI: J J-W Lee. Funded by NIST for US\$82,000.

**2009-2012** *Enamel as a dietary indicator in primates*. PI: PW Lucas; Co-PIs: PJ Constantino and J J-W Lee. Funded by NSF Physical Anthropology for US\$290,000.

**Invited Lectures (since 1990 only)**

**July 1990** by CR Peters to organise symposium on **The Physical and Chemical Properties of Items in the Diets of Primates** at the Congress of the International Primatological Society in Nagoya-Kyoto, Japan.

**March 1992** by DJ Chivers & P Langer. Selwyn College, Cambridge. Workshop on **The Digestive System in Mammals**. (objective: to plan a book)

**March 1993** by Dr AR Ennos (Univ. of Manchester). Society for Experimental Biology, Canterbury, U.K. Title: *'The ecology of a mechanically-defended seed: germination vs. predation'*.

**August 1994** by MF Teaford (Johns Hopkins) and M Ferguson (Univ. of Manchester). International Congress of Vertebrate Morphology, Chicago, U.S.A. Title: *'Function of mammalian teeth'*.

**April 1995** by Johns Hopkins University, Department of Cell Biology & Anatomy. Title: *'Dental function: The cutting edge'*.

**April 1995** by University of Alberta, Edmonton, Department of Oral Biology. Title: *'Teeth and toughness: Adaptations of the primate mouth'*.

**April 1996** by C Wall (Duke Univ.) & C Ross (SUNY at Stony Brook). Title: *'Mechanisms of bolus formation - their relevance to chewing and swallowing'*. American Association of Physical Anthropologists Annual Meeting, Chapel Hill, N. Carolina, U.S.A.

**May 1996** by Department of Biology, Universiti Brunei. Title: *'The toughness of plant cell walls and woody tissues'*.

**August 1996** by P Garber & J Lambert (Univ. of Illinois at Champaign). Title: *'Seed dispersal by long-tailed macaques'*. International Primatological Society Congress, Madison, Wisconsin.

**March 1997** by University of Chicago, Department of Organismal Biology and Anatomy. Title: *'The relationship between tooth form and diet'*.

**September 1997** Member of Scientific Committee for Plant Biomechanics 97. University of Reading, U.K.

**October 1997** by C Niemitz (Freie Universitat, Berlin) to speak at the 5<sup>th</sup> Congress of German Primatological Society. Freie Universitat, Berlin.

**December 1999** by R Hamer (Wageningen Centre for Food Sciences). Wageningen, Netherlands. Title: *'Food physics and oral physiology'*. A **Food Summit** involving about 50 international invitees from academia, government and industry.

**April 2000** by RZ German (University of Cincinnati) & NG Jablonksi (California Academy of Sciences). American Association of Physical Anthropologists meeting. San Antonio, Texas. Title: *'Plant mechanics and primate dental adaptations: an overview'*.

**September 2000** Member of Scientific Committee for 3<sup>rd</sup> Conference on Plant Biomechanics. University of Freiburg, Germany.

**September 2000** by Department of Oral Biology, University of Illinois at Chicago and by Department of Anatomy, State University of New York at Stony Brook. Title: *'Mechanics of food breakdown'*.

**December 2001** by M Dagosto & MJ Ravosa (Northwestern University). Symposium on Primate Origins. Chicago. Title: *'A pocket field guide to primate color vision'*.

**September 2002** by K Nishinari (Osaka) 1<sup>st</sup> Conference on Mastication and Health, Yokohama, Japan. Title: *'Food physics and physiology'*.

**February 2003** Seminars (variously titled) at University of Southern California, University of Chicago, George Washington University/Smithsonian Institution, Harvard University, all on the topic of cooking and evolution of the human face.

**February 2004** by E Simms (UC Berkeley) Gordon conference on Plant-Herbivore Interactions, Ventura Beach, California. Title: *'Getting physical: How herbivorous primates choose foods'*.

**February 2005** by BA Wood (George Washington Uni.) Annual Meeting of AAAS (Washington DC) title: *'Diet in human evolution as seen from an ecological perspective'* (as part of a symposium entitled Origin and Evolution of the Modern Human Diet).

**April 2005** by T Bromage (NYU) Symposium on Integrative Approaches to Human Health and Evolution, sponsored by **Fundacion Ramon Areces** (Madrid, Spain). Talk: *'Facial dwarfing and dental crowding in relation to diet'*.

**November 4-5 2005** (invited by Dr Kack-Kyun Kim) 4<sup>th</sup> Annual Meeting of the Korean Basics Dental Science Societies Association, Seoul, Korea. Talks: *'The Scientific Foundations of Dentistry'* and *'Swallowing'*.

**December 14-17 2006** (invited by R Hamer) WCFS Food Summit, Wageningen, Netherlands on *'Making Sense of Food'*. Acted as moderator/speaker/discussant. Title: *'Tools, teeth and the first bite'*.

**February 17 2006** Entomology, College Park, University of Maryland (invited by R Denno) Title: *'How plants get tough: the efficacy of mechanical defenses against animals'*.

**March 15 2006** Instituto de Doñana, Sevilla (invited by C Alonso) Title: *'Estudios sobre las defensas físicas de semillas contra predacion'*.

**March 23 2006** by T Lowrey (Biology/Anthropology, University of New Mexico, Albuquerque) Title: *'What a mouthful! A new theory of tooth size in mammalian and human evolution'*.

**May 17-20 2006** by M Richards (Max Planck Institut, Leipzig, Germany) Title: *'The relationship between the human dentition and diet during the Paleolithic'*.

**July 31-Aug 4 2006** by Dr AR Ennos (University of Manchester) World Congress of Biomechanics, Munich Germany Title: *'The role of hardness and toughness in the mechanical defences of plants'*.

**Sept 15 2006** New York University, Department of Anthropology [invited by S Bailey] *'Tools, teeth and the first bite'*.

**Oct 16 2006** Johns Hopkins University School of Medicine, Department of Physical Medicine and Rehabilitation [invited by R German]. *'Chewing, digestion and the Stone Age diet'*.

**Nov 12 2006** Brown University, Department of Ecology and Evolution [invited by C Janis]. *'Seeds of war: the biomechanical designs of predators and their prey.'*

**Nov 28 2006** Materials Research Society 2006 Fall Meeting, Boston, MA *'How baby plants avoid getting hurt and blossom into adulthood: the story of a tropical seed.'*

**Jan 4 2007** Winter meeting of the Anatomical Society of Great Britain *'Structural and functional trends in mandible and tooth morphology in the hominin clade'*.

**March 27–April 1 2007** American Association of Physical Anthropologists Annual Meeting (poster) *'How a prey seed tries to avoid its predator: the orangutan-Mezzettia interface'*.

**April 13 2007** Duke University, Department of Biological Anthropology and Anatomy [invited by C Wall]. *'Hard object feeding'*.

**April 20 2007** SUNY at Stony Brook, Department of Anatomy [invited by J Fleagle]. *'Hard object feeding'*.

**July 16-21 2007** Université Pierre et Marie Curie, Paris, 8<sup>th</sup> International Congress of the ICVM [workshop co-organized with Dr C Ross] *'Theoretical background and methods for measuring material properties of primate foods'*.

**Oct 5 2007** Department of Biology, GWU *'Developing a tropical field lab for analyzing primate diets'*.

**Oct 13 2007** University of Rhode Island, Kingston, Northeast branch of Division of Vertebrate Morphology, SICB *'Enamel and diet'*.

**Jan 9 2008** Department of Biology, University of California Santa Cruz *'Enamel as a dietary indicator in mammals'*.

**April 1-4 2008** WG 38 Leaf Biomechanics, ARC NZ Vegetation Function Network, Department of Biological Sciences, Macquarie University, Australia. Purpose: *Take part in an international working group to plan a paper synthesizing information around the physical properties of leaves.*

**April 14 2008** Integrative and Evolutionary Biology, University of Southern California. *Enamel as a dietary indicator in mammals'*.

**July 14-16 2008** University of Western Australia, Perth. International Workshop on Mechanics-Based Design of Materials. *'How not to be eaten: Generalizations about the mechanical defences of plants and a case study'*.

**August 26-30 2008** Griefswald, Germany. 14<sup>th</sup> International Symposium of Dental Morphology. *'Tooth form as a function of diet'*.

**Jan 27 2009** Drexel University, Materials Science and Engineering. *'Biomechanics in an ecological context'*.

**Oct 24 2009** Pennsylvania State University, Anthropology. *'Primate enamel – what it says about diet'*.

**Feb 5 2009** University of Maryland, Baltimore County, Mechanical Engineering. *'Hard object feeding by mammals'*.

**Feb 27-March 1 2009** The American Museum of Natural History, New York City. *'Using indentation techniques to assess the mechanical properties of fallback foods'*. Poster presentation (invited by E Delson)

**March 31-April 4 2009** 78th Annual Meeting of American Association of Physical Anthropologists, Chicago, Illinois. *'Measurement of fallback food hardness in the field'*. (conference presentation)

**June 10-11 2009** Biomouth Meeting. Dunedin, New Zealand. *'Mechanical interactions between food and teeth'*. (invited speaker)

**Oct 4 2009** Faculty of Dentistry, Kuwait University. *'Correlating the anatomical structure of teeth with their function'*.

**June 28-July 3 2010 IPC3, London UK.** *'The role of fracture mechanics for analysing dental function and adaptation'* (invited speaker)

**July 5-7 2010** Conference on Food Oral Processing, Leeds. *'The feeding process in a mammalian context: How do oral sensations affect diet?'* (organizer and invited speaker)

**Sept 27 2010** Stony Brook University. *'Diet, dentition and bite forces'*.

**Oct 5 2010** Workshop on **Interplay between food oral processing and sensory perception**, Nestlé Research Center, Lausanne. *'Food Physics and Oral Physiology'* (invited speaker)

**Sept 13-17 2011** 34<sup>th</sup> Paläontologische Gesellschaft, Vienna, Austria. Keynote Speaker on *'Fundamental principles in chewing and food processing'* for symposium entitled 'Functional Morphology of Vertebrate Dentitions'.

**Sept 27-30 2011** AMER Regional Meeting of the International Association of Dental Research, Abuja, Nigeria. Speaker: *'Fracture toughness of sea otter enamel'*. (Also represented Kuwait Association for Dental Research - KuADR).

**March 26-28 2012** participant at workshop on *Evolution of Human Teeth and Jaws: Implications for Dentistry and Orthodontics*. NESCent, Raleigh-Durham, NC, USA.

**May 6 2012** Kuwait Association for Dental Research. Plenary speaker on *Diet and oral health*. Kuwait University.

**June 20-23 2012** International Association for Dental Research. Presentation: *Nanoproperties of potential wear particles in relation to dental enamel*. Iguacu, Brazil. (I also represented Kuwait Association for Dental Research as its current vice-president)

**July 2-5 2012** 2<sup>nd</sup> International Conference on Food Oral Processing. Presentation: *Tooth wear: mechanisms and implications*. Beaune, France.

### Research students/ fellows

**Zhongquan Sui** (Sept 2003-Oct 2007) Ph.D. *The mechanical properties of starchy foods in relation to texture and digestibility*. Subsequent career: postdoctoral fellow in Purdue University, Indiana.

**Nathaniel Jay Dominy** (Oct 1998-June 2001) Ph.D. *Trichromacy and the ecology of food selection in four African primates*. Subsequent career: Associate Professor, Department of Anthropology, University of California (Santa Cruz). Nate won the top graduate student prize in both the medical faculty (Stephen K.P. Chang Gold Medal) and the whole university (Li Ka Shing gold medal).

**Kalpana R. Agrawal** (Dec 1995-Nov 1998) Ph.D. *The influence of food texture on chewing patterns*. Subsequent career: part-time senior research assistant and lecturer, Department of Anatomy, University of Hong Kong. Currently, looking for a position.

**Nicola Ann Parillon** (Dec 1994-Dec 1998) Ph.D. *Sensory cues for feeding by macaques*. Subsequent career: Lecturer in Environmental Science, University of Bukoba, Tanzania.

**Jonathan Franklin Prinz** (Sept 1994-Oct 1996) Ph.D. *Physical Mechanisms in the Pathogenesis of Temporomandibular Joint Sounds*. Subsequent career: Postdoctoral fellow at London Hospital Dental School, London; then Lecturer in Anatomy in Medical Sciences, Queen Mary Westfield College, University of London; then Senior Scientist, Wageningen Centre for Food Sciences; now Senior Scientist, TNO, Utrecht, Netherlands.

**Choong Mei Fun** (Feb 1993-July 1997). Ph.D. *Patterns of Herbivory in Tropical Fagaceae*. Subsequent career: R&D at Givaudan Roure (Singapore); then postdoctoral fellow in Marine Biology at the National University of Singapore; now Lecturer, Republic Polytechnic, Singapore.

**David Anthony Hill** (Jan 1994-April 1995) Postdoctoral Fellow. Subsequent career: Lecturer in School of Biological Sciences, University of Sussex.

**Nayuta Yamashita** (Oct 1998-Aug 2000) Postdoctoral Fellow. Subsequent career: Assistant Professor in Department of Anthropology, University of Southern California.

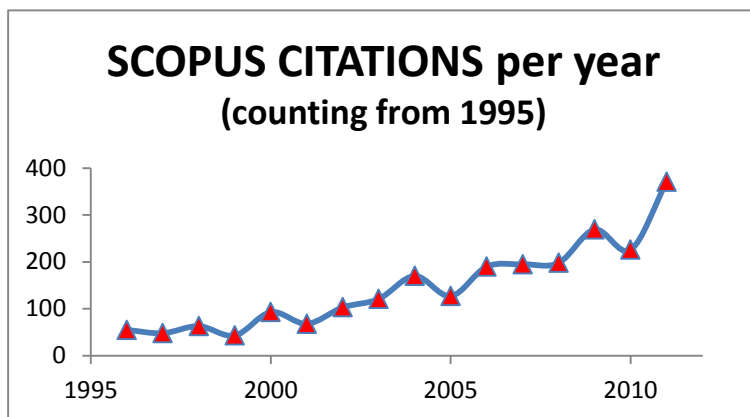
**Barth Wright** (Sept 2005-Aug 2006) Postdoctoral Fellow. Subsequent career: Assistant Professor in Department of Anatomy, Kansas City University of Medicine and Biosciences.

**Paul Constantino** (Sept 2007-Aug 2010) Postdoctoral Fellow. Subsequent career: Assistant Professor in Department of Biological Sciences, Marshall University.

## Citations

2011: **390** (SCOPUS) or **569** (GOOGLE SCHOLAR)

Jan-June 2012: **261** (SCOPUS)



*h index*: **29** (SCOPUS) or **37** (GOOGLE SCHOLAR inc. earliest publications, book and book chapters)

**Consulting Experience:** I consulted with Unilever UK in 1980 and 1983 on mastication in relation to food structure. I also liaised with the Wageningen Centre for Food Science (WCFS) at various periods between 1999 and 2007, and now with Nestlé Research. I was an invited speaker at the first international conference on ‘*Food Oral Processing: Physics, Physiology and Psychology of Eating*’ at Leeds, UK between 5-7 July 2010 and was on the organizing committee for the recent meeting in 2012. These are interdisciplinary meetings involving dentists, food scientists, materials scientists and engineers interested in food processing in the mouth.

**Publicity IN JOURNALS:** R.M. Alexander (1998) News of chews: the optimization of mastication. *Nature* 391: 329. (News and Views article that featured papers by JF Prinz & KR Agrawal exclusively.) J.E. Lambert (1999) Primate color vision research. *Evol. Anthropol.* 8: 39-41 (this featured the 1997 RGC project and the 1998 workshop at HKU). A.S. Moffat (2002) *Science* 295: 613-615. Our theory of colour vision was featured briefly in the BBC documentary series ‘*The Life of Mammals*’. P. Ungar (2008) Strong teeth, strong seeds. *Nature* 452: 703-704. (News and Views article that featured BioEssays paper). **GENERAL MEDIA INTEREST (from 2001 onwards):** Numerous online news sites including New York Times, National Geographic Society, CNN, BBC, ABC, Nature

News Service, Complexity Digest, Cosmiverse, Wired, California Academy of Sciences, Science-Presse [Canada], ABC [Australia], Le Nouvel Observateur [France], Spiegel [Germany], Der Teggespiegel [Germany], Universonline [Italy], Alcon Journal [Argentina], Jornal da Ciencia [Brazil], Anir [Cuba], Hürriyetim [Turkey]. In print: *Sciences et Avenir* (France): Avril, 2001 p. 28: Les singes en voient de toutes les couleurs. *The Philadelphia Inquirer* (USA): March 19, 2001 p. 10: Study links ability to tell colors to needs when foraging for food. *South China Morning Post* (Hong Kong): March 19, 2001: Light thrown on human vision. *Sontags Zeitung* (Switzerland): March 18, 2001 p. 95: Ein affe sieht rot. *Folha de Sao Paulo* (Brazil): March 15, 2001 p. A23: Visão de primatas ajuda alimentação. *NRC Handelsblad* (Netherlands): February 23, 2002: Kleurenzien bij dieren ontstond door jacht op eiwitrijk blad. *Nature Australia* (2002) 27(4): 7-8. Seeing red. *The Economist* Oct 12<sup>th</sup>, 2002 p.80. A youthful blush. *Science News* (USA) Oct 11<sup>th</sup> 2003 Visionary Research. *The New York Times* Feb 22<sup>nd</sup> 2005 A Theory to Chew On, but Not Too Heartily. *The New Scientist* May 19<sup>th</sup> 2008: Five things humans no longer need. UK radio program called *The Naked Scientists* (<http://www.thenakedscientists.com/HTML/content/questions/question/2169/>). Coverage of *Strait et al.* (2009): 4 Feb 09. About 50 major news outlets included this, including reports from *MSNBC*, *National Geographic*, and *United Press International*. Coverage of *Chai et al.* (2009): 15 April 09. Several science and popular websites included this, including *Science News* and *Science Now* (AAAS), *Live Science*, *World News*, *FoxNews.com* and *Thaindian.com*. June 2<sup>nd</sup>, 2011: <http://news.unm.edu/2011/06/scientists-uncover-seed-evolution-patterns-that-help-prevent-predation/>. Dec 22<sup>nd</sup> 2011: <http://news.unm.edu/2011/12/top-10-unm-research-stories-for-2011/>. Jan 2012: *Annals of Botany* 109: v–vii, 2012 ‘*Plant Cuttings*’ column. March 2012: *Annals of Botany* 109 (4): iii–vi. 2012 ‘*Plant Cuttings*’ column. March 25<sup>th</sup> 2012: An evolutionary theory of dentistry. Written by Ann Gibbons as an account of the NESCent meeting. *Science* 336: 973-975. July 2012: Like a jungle sometimes: how leaves survive in the rainforest understory. Commentary in *The New Phytologist* 195: 507-509 by Y. Onoda and C. Lusk.