CURRICULUM VITAE

Personal Information

Name:	J Scott Turner
Birthdate:	11 August 1951
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Degrees Conferred

Doctor of Philosophy 1982.
Department of Zoology and Entomology, Colorado State University.
Dissertation title: The relationship between heat exchange and blood flow in reptiles.
Advisor: Dr C R Tracy.

Master of Science 1979.
Department of Zoology and Entomology, Colorado State University.

Bachelor of Arts 1976.
College VIII, University of California, Santa Cruz.

Honors and awards

Purpose and Desire is awarded the **2018 Nautilus Book Award. Gold** in the category Science and Cosmology.

Purpose and Desire was granted the prestigious starred award from *Kirkus Review* (2017).

Inclusion of Essay *Signs of Design* in the compilation **Best Amercian Spiritual Writing of 2008**. Jimmy Carter and Philip Zaleski (ed). Houghton-Mifflin.

Distinguished Teacher Award (ESF Undergraduate Student Association, 2004)

World's Top Twelve Researchers in Biomimicry (nomination). (Biomimicry Institute and Zero Emissions Research Group, 2008)

Senior Award for Excellence in Research (Sigma Xi, Syracuse Chapter, 2003)

Positions Held

In January 2022, I joined the National Association of Scholars as their Director of the Intrusion of Diversity in the Sciences project.

Since August 2019 I have been Emeritus Professor of Biology, retired from the SUNY College of Environmental Science and Forestry (SUNY ESF), in Syracuse, New York.

I came to SUNY ESF as an assistant professor in 1990, was promoted to associate professor in 1995, and to full professor in 2009.

I have also held various temporary appointments. In 2010, I was a visiting scholar in the Department of Earth sciences at Cambridge University. In 2017, I was a resident fellow at the Stellenbosch Institute for advanced study in Stellenbosch, South Africa.

After receiving my PhD, I enjoyed various short postdoctoral stints at Duke University (with Prof Knut Schmidt-Nielsen), the University at Buffalo Medical School (with Profs Hermann Rahn and Charles Paganelli), Franklin and Marshall College (visiting instructor), the University of Cape Town (with Profs Gideon Louw and Roy Siegfried), and the University of Bophuthatswana in South Africa, now the University of the North West, in Mafikeng / Mmabatho.

Learning and teaching

I am retired, and am no longer a classroom teacher. Nevertheless, I remain a teacher at heart. Presently, all my teaching is done through online courses, available at udemy.com.

Physics of Life.

Thermodynamics
Biomechanics
Fluids
Wave phenomena

Animal Physiology.

Respiration & gas exchange
Blood, circulation & gas exchange
Digestion & metabolism
Temperature, heat & water balance

***Biophysical Field Methods*.** (with Prof Berry Pinshow, Ben-Gurion University of the Negev, Israel.

***A primer on symbiosis*.**

A primer on social insects..

Media

I have produced an extensive library of media, including video, photography, and music, which can be found on the *media* page of my *website*. Much of this is for educational media, listed above. Other media include public service productions for my local school district and arts council, as well as other more artistic productions. You can see a showcase of these here. More video productions can be found on my *vimeo channel*.

I am the informal webmaster for a remote desert research station in Namibia: Gobabeb, Namib Research Institute. As part of my work with Gobabeb, I have been undertaking various media productions intended to increase their web presence. See showcases for *Paleoclimates*, *What's happening at Gobabeb?*, and *Conversations about Gobabeb*.

I also maintain a *YouTube channel*, which features many playlists, including my developing video series on Evolution, samples from my various online courses that are available for purchase through udemy.com, as well as various other media development projects.

In 2022, I joined the National Association of Scholars as a project director. As part of my activities there, I produce a webinar series, *Restoring the Sciences*.

Robert Manzer. *The academy's path to illiberalism.* July 7, 2023. Link.

Barry Smith, Jobst Landgrebe, Steve Petersen. *AI and ChatGPT. Should we be worried?* May 19. 2023. Link.

Steve Einhorn, Roger Pielke Jr. *The climate question.* May 11, 2023. Link.

Heather Mac Donald, Pat Kambhampati. *MIT debate preview with Heather Mac Donalnd and Pat Kambhampati.* April 4, 2023. Link.

Randy Wayne. *Truth in the postmodern university.* March 24, 2023. Link.

Nathan Cofnas. *Heterodox Academy. A good idea gone awry*? March 17, 2023. Link.

Joe Salvidar, Ximena da Silva Tavares, Timothy Plett. *Pushing back. The Renegade Institute.* March 10, 2023. Link.

Bradley Watson. *Standing against institutional capture*. January 27, 2023. Link.

Ute Deichmann. *Science and the ideology of race*. January 8, 2023. Link.

Mark P Mills. Manhattan Institute. *Climate solutions realism*. December 2, 2022. Link.

David Legates. Heartland Institute. *Is the university a friend or foe of science?* November 11, 2022. Link.

Michael Flannery. University of Alabama Birmingham. *Saving evolution from itself.* October 28, 2022. Link.

Roger Pielke, Jr. University of Colorado Boulder. *Climate misinformation.* October 14, 2022. Link.

Jobst Landgrebe and Barry Smith. Tech entrepreneur and philosopher. *Will machines rule the world?* October 4, 2022. Link.

John Staddon. *Science in an age of unreason*. July 22, 2022. Link.

Luana Maroja. Williams College. *What's wrong with science?* August 26, 2022. Link.

Stephen Turner and Darryl Chubin. *Scientific culture. Has it changed for the better?* June 24, 2022. Link.

Publications

I have been a prolific author throughout my career, and into my retirement. These have included books, popular articles, and publications more directly related to my scientific work.

Books (Amazon author page)

Over the past twenty years, I have written three acclaimed books, which together represent my developing thinking on adaptation and evolution.

J S Turner. 2017. *Purpose and Desire. What Makes Something "Alive" and Why Modern Darwinism Fails to Explain It.* HarperOne. San Francisco. Link
(winner of the 2018 Nautilus Book Award, Gold in Science and Cosmology).

J S Turner. 2007. *The Tinkerer's Accomplice. How Design Emerges from Life Itself.* Harvard University Press. 282 pp. Link

J S Turner. 2000. *The Extended Organism. The Physiology of Animal-Built Structures.* Harvard University Press, Cambridge, MA. 234 pp. Link

J S Turner. 2007. (Japanese language edition) *The Extended Organism. The Physiology of Animal-Built Structures.* (Seibutsu ga tsukuru taigai kōzō :enchōsareta hyōgengata no seirigaku, **生物がつくる〈体外〉構造：延長された表現型の生理学 /**). Misuzu Shobo. Translated by Y Shiga and T Fukatsu. 333 pp

J S Turner. 2009. (Japanese language edition) *The Tinkerer's Accomplice. How Design Emerges from Life Itself.* 自己デザインする生命：目次 - 「ユリイカ . Seidosha.. 312 pp.

Online courses

Online courses are in their own way publications. I list my media production efforts dedicated to learning and teaching.

J S Turner. *Animal Physiology.*
1. Respiration and gas exchange. Link
2. Blood circulation and gas exchange. Link
3. Digestion and metabolism. Link
4. Temperature, heat and water balance. Link

J S Turner and Berry Pinshow. *Biophysical Field Methods.* Link
Methods and principles for the physical ecology of harsh environments. Coupled with the field course Biophysical Ecology in the Namib. Link

J S Turner. *Physics of Life*
1. Thermodynamics. Link
2. Biomechanics. Link
3. Fluids. Link
4. Wave phenomena. Link

J S Turner. *A primer on symbiosis* Link

J S Turner. *A primer on the social insects* Link

J S Turner. *Evolution*. Link

Popular articles, book reviews etc.

These are publications intended for general interest. Topics range from my specific research interests to broader policy and philosophical issues.

J S Turner. 2023. Getting academic freedom right. *National Association of Scholars.* 21 June 2023. Link.

J S Turner. 2023. Greenwashing a famine. *Minding the Campus: Minding the Sciences*. 28 June 2023. Link.

J S Turner. 2023. The not-so-silent spring. *Minding the Campus: Minding the Sciences*. 22 June 2023. Link.

J S Turner. 2023. Science should leave the university. *Minding the Campus*. June 1, 2023. Link.

J S Turner. 2023. In defense of merit. Is it too late? *Minding the Campus.* May 23, 2023. Link.

J S Turner. 2023. In defense of Professor Matthew Garrett. *National Association of Scholars*. May 10, 2023. Link.

J S Turner. 2023. Should academic DEI programs be abolished? *National Association of Scholars.* April 25, 2023. Link.

J S Turner. 2023. The National Audubon Society considers canceling itself. *The Spectator.* April 4, 2023. Link.

J S Turner. 2023. (Almost) Holden and me. April 6, 2023. *Minding the Campus*. Link.

J S Turner. 2023. Paranoia strikes deep. *Minding the Campus.* March 20, 2023. Link.

J S Turner. 2023. The pampered pets of big science. *Minding the Campus.* February 20, 2023. Link.

J S Turner. 2023. Science: Are we getting what we're paying for? *Minding the Campus.* January 24, 2023. Link.

Perry Green. 2022. Climate follies in the developing world. *City Journal*. 22 December 2022. Link.

J S Turner. 2022. Unreasonable science. A review of the John Staddon's book *Science in an Age of Unreason. Academic Questions*. Link.

J S Turner and Mason Goad. 2022. Censorship in the sciences. *National Association of Scholars.* October 12, 2022. Link.

J S Turner. 2022. On tenure. October 7, 2022. *National Association of Scholars*. Link.

J S Turner. 2022. The closing of the endless frontier. *National Association of Scholars*. Link.

J S Turner. 2022. Barbara Ehrenreich, RIP (1941-2022). *Minding the Campus*. Link.

J S Turner. 2022. How to Go After the Big Science Cartel and Actually Win. *RealClear Science.* Link.

J S Turner. 2022. Cancelling Huxley. *National Association of Scholars Blog*. Link.

J S Turner. 2022. National Science Foundation funds politicized DEI Research. *City Journal*. Link.

J S Turner. 2022. Scientific publishing is a scam fed by the government. *RealClearScience*. Link.

J S Turner. 2022. The dangerous rise of academic diversity quotas. *The Spectator*. Link.

J S Turner. 2022. NAS Comments of Proposed DEI Requirement for Engineering Accreditation. *National Association of Scholars.* Link.

J S Turner. 2022. How accreditation forces DEI ideology into STEM education. *RealClearScience.* Link.

J S Turner. 2022. HBCUs chasing the research dollars. *National Association of Scholars*. Link.

J S Turner. 2022. Biden's science advisor falls to the woke. *The Spectator*. Link.

J S Turner. 2022. Too many scientists spoil the job market. *The Spectator*. Link.

J S Turner. 2022. Restoring the Endless Frontier? *National Association of Scholars*. Link.

J S Turner. 2022. Jordan Peterson and the crisis of totalitarian academia. *The Spectator*. Link.

J S Turner. 2022. The Military-Industrial-Academic-Political-Scientific Complex. *National Association of Scholars*. Link.

J S Turner. 2022. The White House is Undermining Science, Not Defending It. *National Association of Scholars*. Link.

J S Turner. 2021. Modern science's broken bargain. *The American Mind*. Link.

J S Turner. 2021. The brainworms come for Big Science. *The American Mind*. Link.

J S Turner. 2020. The self-inflicted decline of science and the academy. *National Review* September 24, 2020. Link.

J S Turner. 2020. Science and the decline of the American academy. *Heritage Foundation First Principles*, 27. Link

J S Turner. 2020. The physiology and biophysics of respiratory therapy. *Inference: International Review of Science.* Special Reports. Link.

J S Turner. 2020. Antimalarial drugs as COVID-19 therapy. *Inference: International Review of Science* Special Reports. Link.

J S Turner. 2014. People. Interview with Scott Turner. *Zygote Quarterly* 8. Winter 2013/2014. pp. 60-71.

J S Turner. 2014. Book review: Comparative Biomechanics: Life's Physical World, 2nd edition. Steven Vogel. *American Journal of Physics* 82(3): 531-532.

J S Turner. 2012. The thermodynamics of life. Book review. Work Meets Life . The Integrative Study of Work in Living Systems. Robert Levin, Simon Laughlin, Christina de la Rocha and Alan Blackwell (eds). 2011. *Metascience* 21 (2): 371-373.

J S Turner. 2010. Dirt lungs. *Natural History*. 19 (2): 248.

J S Turner. 2008. Signs of design. *The Best American Spiritual Writing of 2008*. Jimmy Carter and Philip Zaleski (ed). Houghton-Mifflin, New York.

J S Turner. 2008. Termites. Friend or Foe? Pamphlet for the series *Spotlight on Agriculture*. Ministry of Agriculture. Republic of Namibia.

J S Turner. 2008. Nature's awful beauty. Book review. Built by Animals. The Natural History of Animal Architecture. Mike Hansell. *American Scientist*. 96(2): 158-159.

J S Turner. 2007. Signs of design. *The Christian Century*. June 12, 2007. Vol 124 No 12. 18-22.

J S Turner. 2007. Science by committee? Focus on Microbiology Education Spring 2007 (http://www.microbelibrary.org/about/index.asp?bid=1079).

J S Turner. 2007. Why can't we talk about intelligent design? Chronicle of Higher Education Volume LIII: Number 20. 19 January 2007. *The Chronicle Review*, Section B: B20

J S Turner. 2007. Book review. Design and Nature III: Comparing Design in Nature with Science and Engineering. C A Brebbia (ed). *Quarterly Review of Biology*. 82: 265-266.

J S Turner. 2006. Book review. Animal Architecture. Mike Hansell. *Quarterly Review of Biology.* 81: 183-184.

J S Turner. 2005. What are the termite mounds pointing at? *Roan News*. 2005 (1): 25-27.

J S Turner. 2004. Book review. Comparative Biomechanics: Life's Physical World. Steven Vogel. *Quarterly Review of Biology* 79: 297.

J S Turner. 2002. A superorganism's fuzzy boundary. *Natural History* 111 (6). July-August 2002: 62-67.

J S Turner. 2002. Saving Darwinism from itself. *The World & I* 17 (7). July 2002: 136-145.

J S Turner. 2002. Book review. Wild Solutions. How Biodiversity is Money in the Bank. A Beattie and P R Ehrlich. *Quarterly Review of Biology* 77: 85-86.

J S Turner. 2002. The termites' dilemma. *Earthwatch Journal*. October 2002: 3.

J S Turner. 2001. My publishing adventure. *ESF Today*. Summer 2001: 3.

J S Turner. 2000. Termites and other natural teachers. *Chronicle of Higher Education* 3 November 2000: B24.

J S Turner. 1996. Does the white ant have a soul? *EarthWatch*. March-April 1996: 34-41.

Review articles

These are articles that summarize or encapsulate broad fields of research.

J S Turner. 2022. Do species want to evolve? *Philosophical Aspects of Origin (Filozoficzne Aspekty Genezy).* 19(2) 63-85, https://doi.org/10.53763/fag.2022.19.2.203

Margaret Bryant, **Scott Turner.** 2019. From thermodynamics to creativity: McHarg's ecological planning theory and its implications for resilience planning and adaptive design. *Socio-Ecological Practice Research* 1 (1) DOI: 10.1007/s42532-019-00027-1

J S Turner. 2019. Homeostasis as a fundamental principle for a coherent theory of brains. *Philosophical Transactions of the Royal Society of London B*. 374 (1774): 20180373.

J S Turner. 2018. Many little lives. *Inference: International Review of Science* 4 (4): http://inference-review.com/article/many-little-lives.

Penn, Alan and **J S Turner.** 2018. Can we identify general architectural principles that impact the collective behavior of both human and animal systems? *Philosophical Transactions of the Royal Society* 373 (1753): 20180253.

J S Turner. 2017. Swarm cognition and swarm construction. Lessons from a social insect master builder. In: J Portugali and E Stolk (eds.) *Complexity, Cognition, Urban Planning and Design*. Springer-Heidelberg.

J S Turner. 2016. Semiotics of a superorganism. *Biosemiotics* 9 (1) (March) DOI: 10.1007/s12304-016-9256-5.

J S Turner. 2016. Homeostasis and the physiological dimension of niche construction theory in ecology and evolution. *Evolutionary Ecology*. 30 (2), 203-219.

J S Turner and B Pinshow. 2015. Transient-state mechanisms of wind-induced burrow ventilation. *Journal of Experimental Biology* 218 (2): 170-175.

J S Turner. 2013. Homeostasis and the forgotten vitalist roots of adaptation. Ch 11 in: *Vitalism and the Scientific Image in Post-Enlightenment Life Science 1800-2010*. S. Normandin and C. T. Wolfe (eds). Heidelberg, Springer. pp. 271-291.

J S Turner. 2013. Superorganisms and superindividuality. The emergence of individuality in a social insect assemblage. In: Frédéric Bouchard and Philippe Huneman (eds). *From Groups to Individuals. Perspectives on Biological Associations and Emerging Individuality. The Vienna Series in Theoretical Biology.* MIT Press. pp 219-241

J S Turner. 2013. Biology's second law. Homeostasis, purpose and desire. In: B. G. Henning and A. Scarfe. (eds). *Beyond Mechanism. Putting Life Back into Biology.* Lexington Books/Rowman & Littlefield. pp 183-203

J S Turner. 2012. Evolutionary architecture? Some perspectives from biological design. *Architectural Design* 82(2): 28-33.

Odling-Smee, J and **J S Turner.** 2012. Niche construction theory and human architecture. *Biological Theory* 6 (3): 283-289. DOI 10.1007/s13752-012-0029-3

J S Turner. 2011. Termites as models of swarm cognition. *Swarm Intelligence*. 5(1): 19-43

J S Turner and R C Soar. 2010. Beyond biomimicry. What termites can tell us about realizing the living building. Chapter 15 in: *Industrialised, Integrated, Intelligent sustainable Construction*. ISBN 978-0-86022-698-7. Ian Wallis, Lesya Bilan, Mike Smith & Abdul Samad Kazi (eds). I3CON/BSRIA. London.. pp 233-248.

J S Turner and R C Soar. 2008. Beyond biomimicry. What termites can tell us about realizing the living building. *Proceedings of the First International Conference on Industrialized, Integrated, Intelligent Construction*. Loughborough University, 14-16 May 2008.

J S Turner. 2008. Homeostasis, complexity, and the problem of biological design. *Emergence: Complexity and Organization*. 10(2). http://emergence.org/ECO_site/web-content/ECO_10_2.html.

J S Turner. 2007. Homeostasis, complexity, and the problem of biological design. In: *Explorations in Complexity Thinking: Pre-Proceedings of the 3rd International Workshop on Complexity and Philosophy.* Kurt A Richardson and Paul Cilliers (eds). Stellenbosch, February 2007. ISCE Publishing, Mansfield, MA. Pp 131-147.

J S Turner, E Marais, M Vinte, A Mudengi, W L Park. 2006. Termites, water and soils. *Agricola* 16: 40-45.

J S Turner. 2006. Termites as mediators of the water economy of arid savanna ecosystems. In: *Dryland Ecohydrology*, Amilcare Porporato and Paolo d'Odorico (eds). Kluwer. Pp. 303-313.

J S Turner. 2005. Extended physiology of an insect-built structure. *American Entomologist* 51(1): 36-38.

J S Turner. 2004. Gaia, the extended organism and emergent homeostasis. Chapter 5 in *Scientists Debate Gaia: The Next Century.* Stephen H Schneider, James R Miller, Eileen Crist and Penelope J Boston (eds). MIT Press. Cambridge, Massachusetts. pp 57-70. (Contribution to the American Geophysical Union Chapman Conference on Gaia 2000, Valencia, Spain, June 2000.)

J S Turner. 2004. Extended phenotypes and extended organisms. *Biology and Philosophy* 19(3): 327-352. (a special issue on the 20th anniversary of the publication of Richard Dawkins' The Extended Phenotype.

J S Turner. 2003. Trace fossils and extended organisms: A physiological perspective. *New Interpretations of Complex Trace Fossils: A special volume of Palaeogeography, Palaeoclimatology, Palaeoecology* 192: 15-31.

J S Turner. 2002. Maintenance of egg temperature. In: *Avian Incubation: Behaviour, Environment And Evolution*, D C Deeming (ed). Oxford University Press, Oxford. pp 118-142.

J S Turner. 1994. Time and energy in the intermittent incubation of birds' eggs. *Israel Journal of Zoology* 40: 519-540.

J S Turner. 1991. The thermal energetics of incubated birds' eggs. In: D C Deeming and M W J Ferguson, eds., *Egg Incubation: Its Effects on Embryonic Development in Birds and Reptiles*. Cambridge University Press, Cambridge. pp. 117-145.

B T Firth, **J S** Turner and C L Ralph. 1989. Thermoregulatory behaviour in two species of iguanid lizards (*Crotaphytus collaris* and *Sauromalus obesus*): Diel variation and the effect of pinealectomy. *Journal of Comparative Physiology* 159B: 13-20.

J S Turner. 1987. The cardiovascular control of heat exchange: Consequences of body size. *American Zoologist* 27: 69-79.

Tracy, C R and **J S Turner.** 1982. What is physiological ecology? *Bulletin of the Ecological Society of America* 63: 340-341.

B T Firth and **J S Turner.** 1982. Sensory, neural and hormonal aspects of thermoregulation. In: C Gans and F H Pough, eds., *Biology of the Reptilia* vol. 12. Academic Press, London. pp. 213-274.

C L Ralph, B T Firth and **J S Turner.** 1979. The role of the pineal complex in ectotherm thermoregulation. *American Zoologist* 19: 273-293.

Primary Research Articles

These are "traditional" research articles, published on specific topics in scientific research journals.

Carey, Nicole E, Daniel S Calovi, Paul M Bardunias, **J Scott Turner**, Radhika Nagpal and Justin Werfel. 2020. Differential construction response to humidity by related species of mound-building termites. *Journal of Experimental Biology* 222(20): 10.1242/jeb.212274.

Paul Bardunias, Daniel Calovi, Nicole Erin Carey, Rupert Soar, **Scott Turner,** Radhika Nagpal. 2020. The extension of internal humidity levels beyond the soil surface facilitates mound expansion in *Macrotermes*. *Proceedings of the Royal Society B. Biological Sciences* 287 (1930) 20200894, DOI: 10.1098/rspb.2020.0894

Narraway, C. L., O. S. Davis, , Oliver S. P. Davis, Sally Lowell, Katrina A Lythgoe, **J Scott Turner**, Stephen Marshall. 2019. Biotic analogies for self-organising cities. Environment and Planning B: Urban Analytics and City Science: https://doi.org/10.1177239980831988273023998083198827 30.

Calovi, Daniel S, Paul Bardunias, Nicole Erin Carey, **J Scott Turner**, Radhika Nagpal, Justin Werfel. 2019. Surface curvature guides early construction activity in mound-building termites. *Philosophical Transaction of the Royal Society B*: 374 (20180374). http://dx.doi.org/10.1098/rstb.2018.0374

Sayama, Hiroki, Farnaz Zamani Esfahlani, Ali Jazayeri, **J Scott Turner**. 2017. Robust tracking and behavioral modeling of movements of biological collectives from ordinary video recordings. *2017 IEEE Symposium Series on Computational Intelligence (SSCI).* DOI: 10.1109/SSCI.2017.8285238. pp 1-8.

Ocko, Samuel A, Hunter King, David Andreen, Rupert Soar, **J Scott Turner**, L Mahadevan. 2017. Solar-powered ventilation of African termite mounds. *Journal of Experimental Biology*. 220 (18): 3260-3269. DOI: 10.1242/jeb.160895

Petersen, K, Paul Bardunias, Nils Napp, Justin Werfel, Radhika Nagpal, and **J Scott Turner**. 2015. Arrestant property of recently manipulated soil on *Macrotermes michaelseni* as determined through visual tracking and automatic labeling of individual termite behaviors. *Behavioral Processes*. 116:8-11. DOI: 10.1016/j.beproc.2015.04.004

Green, Ben, Paul Bardunias, **J Scott Turner**, Radhika Nagpal and Justin Werfel. 2017. Excavation and aggregation as organizing factors in de novo construction by mound-building termites. *Proceedings of the Royal Society B: Biological Sciences* 284 (1856): 20162730. DOI: 10.1098/rspb.2016.2730

Adams, A. M., E. Marais, **Turner, J. Scott**, Prendini, Lorenzo, Pinshow, Berry. Similar burrow architecture of three arid-zone scorpion species implies similar ecological function. *The Science of Nature* 103(7): 56-67.

Brickner-Braun, I, D Zucker-Milwerger, A Braun, **J S Turner**, B Pinshow and P Berliner. 2014. Ventilation of multi-entranced rodent burrows by boundary layer eddies. *Journal of Experimental Biology* 217: 4141-4148. doi:10.1242/jeb.114231.

J S Turner. 2001. On the mound of *Macrotermes michaelseni* as an organ of respiratory gas exchange. *Physiological and Biochemical Zoology* 74(6): 798-822.

J S Turner. 2000. Architecture and morphogenesis in the mound of *Macrotermes michaelseni* (Sjöstedt) (Isoptera: Termitidae, Macrotermitinae) in northern Namibia. *Cimbebasia* 16: 143-175.

J S Turner. 1997. On the thermal capacity of a bird's egg warmed by a brood patch. *Physiological Zoology* 70: 470-480.

J S Turner. 1994. Transient thermal properties of contact-incubated chicken eggs. *Physiological Zoology* 67: 1426-1447.

J S Turner. 1994. Thermal impedance of a contact-incubated bird's egg. *Journal of Thermal Biology* 19: 237-243.

J S Turner. 1994. Thermal constancy and ventilation of the colony of a southern African termite (*Odontotermes transvaalensis*: Macrotermitinae). *Journal of Arid Environments.* 28: 231-248.

J S Turner. 1994. Anomalous water loss rates from spittle nests of spittle bugs (Homoptera: Cercopidae). *Comparative Biochemistry and Physiology*. 107A: 679-683.

J S Turner, J B Henschel and Y D Lubin. 1993. Thermal constraints on prey-capture behavior of a burrowing spider in a hot environment. *Behavioral Ecology and Sociobiology* 33: 35-43.

J S Turner and M D Picker. 1993. Thermal ecology of a subterranean dwarf succulent from southern Africa (*Lithops* spp: Mesembryanthemaceae). *Journal of Arid Environments* 24: 361-385.

C R Tracy, C R Tracy and **J S Turner.** 1992. Contrasting physiological abilities for heating and cooling in an amphibian (*Rana pipiens*) and a reptile (*Sauromalus obesus*). *Herpetologica* 48:

W R J Dean and **J S Turner.** 1991. Ants nesting under stones in the Karoo: Predator avoidance, safe sites for foundress queens or temperature benefits? *Journal of Arid Environments* 21: 59-69.

J S Turner. 1990. The thermal energetics of an incubated chicken egg. Journal of Thermal Biology 15: 211-.

J S Turner and A T Lombard. 1990. Body color and body temperature in white and black Namib desert beetles. *Journal of Arid Environments* 19: 303-315.

H Tazawa, G C Whittow, **J S Turner** and C V Paganelli. 1989. Metabolic responses to gradual cooling in chicken eggs treated with thiourea and oxygen. *Comparative Biochemistry and Physiolo*gy 92A: 619-622.

H Tazawa, Y Suzuki, **J S Turner** and C V Paganelli. 1988. Metabolic compensation to gradual cooling in developing chick embryos. *Comparative Biochemistry and Physiology* 89A: 125-129.

H Tazawa, **J S Turner** and C V Paganelli. 1988. Cooling rates of living and killed chicken and quail eggs in air and in helium-oxygen gas mixture. *Comparative Biochemistry and Physiology* 90A: 99-102.

J S Turner. 1988. Body size and thermal energetics. How should thermal conductance scale? *Journal of Thermal Biology* 13: 103-117.

J S Turner. 1987. On the transient temperatures of ectotherms. Journal of Thermal Biology 12: 207-214.

J S Turner. 1987. Embryonic blood flow and the heat exchange of avian eggs. Privately published. 9 pp.

J S Turner. 1987. Blood circulation and the flows of heat in an incubated egg. *Journal of Experimental Zoology* (Supplement 1): 99-104.

J S Turner and C R Tracy. 1986. Body size, homeothermy and the control of heat exchange in mammal-like reptiles. In: N J Hotton III, P D MacLean, J J Roth and E C Roth, eds., *The Ecology and Biology of Mammal-Like Reptiles.* Smithsonian Institution Press, Washington, D.C. pp. 185-194.

C R Tracy, **J S Turner** and R B Huey. 1986. A biophysical analysis of possible thermoregulatory adaptations in sailed pelycosaurs. In: N J Hotton III, P D MacLean, J J Roth and E C Roth, eds., *The Ecology and Biology of Mammal-Like Reptiles.* Smithsonian Institution Press, Washington, D.C. pp. 195-206.

J S Turner. 1985. Cooling rate and size of birds' eggs - a natural isomorphic body. *Journal of Thermal Biology* 10: 101-104.

J S Turner, C R Tracy, B Weigler and T Baynes. 1985. Burst swimming of alligators and the effect of temperature. *Journal of Herpetology* 19: 450-458.

J S Turner and R C Schroter. 1985. Why are small homeotherms born naked? Insulation and the critical radius concept. *Journal of Thermal Biology* 10: 233-238.

J S Turner and C R Tracy. 1985. Body size and the control of heat exchange in alligators. *Journal of Thermal Biology* 10: 9-12.

J S Turner. 1984. Raymond B Cowles and the biology of temperature in reptiles. *Journal of Herpetology* 18: 421-436.

J S Turner and C R Tracy. 1983. Blood flow to appendages and the control of heat exchange in the American alligator. *Physiological Zoology* 56: 195-200.

C R Tracy and **J S Turner**. 1982. What is physiological ecology? *Bulletin of the Ecological Society of America* 63: 340-341.

Invited Presentations (since 2005)

I am often invited to give invited presentations to colleagues and institutions. Here are topics, and where possible, links to some of these presentations.

Homeostasis as an organizing principle of social cognition. Janelia Conference on Collective Computation in Biological and Artificial Systems. Howard Hughes Medical Institute. 19 March 2018. (presentation link).

Evolution as cognition. California Institute of Integral Studies, San Francisco, California. 10 January 2018. (presentation link).

Thinking, not just selecting genes. Fellows Seminar. Stellenbosch Institute for Advanced Study, Stellenbosch, South Africa. 18 July 2017. (News link)

Do we have evolution right? Book launch: Purpose and Desire by J Scott Turner. Stellenbosch Institute for Advanced Study, Stellenbosch, South Africa. 17 August 2017. (News link).

Evolution as cognition. Invited presentation to the Department of Zoology and Entomology, University of Pretoria. 25 May 2017.
http://prezi.com/w5rt7sftwhg5/?utm_campaign=share&utm_medium=copy

Insect-built structures and swarm cognition. Invited presentation to the International Congress of Entomology Symposium on Excavation and Construction by Social Insects. 29 September 2016.

Animal cities. Invited presentation to the workshop on Nature-inspired urbanism, University College London Centre for Nature-Inspired Design. 14 December 2016.
https://prezi.com/8ei9to24v6zj/?utm_campaign=share&utm_medium=copy&rc=ex0share

Homeostasis, adaptation and the problem of biological design. Invited presentation to the workshop on Architecture and Collective Behavior. Arizona State University, Tempe, Arizona. 5-7 October 2016.
http://prezi.com/jtgioetfxnum/?utm_campaign=share&utm_medium=copy

What's so inspiring about life? Physiomimetics, adaptation and persistence in harsh environments. Invited presentation to NASA Biomimicry Summit and Education Forum 2016, Ohio Aerospace Institute, Cleveland, Ohio. 2-4 August 2016.
http://prezi.com/atoltdci6gty/?utm_campaign=share&utm_medium=copy

Homeostasis and the physiological dimension of niche construction. Invited presentation to the conference on Niche Construction. Santa Fe Institute, Santa Fe, New Mexico.
http://prezi.com/qqonwqjmuynp/?utm_campaign=share&utm_medium=copy&rc=ex0share

Swarm cognition and swarm construction. Lessons from a social insect master builder. Invited presentation to the workshop on Complexity, Cognition, Urban Planning and Design. Technical University of Delft (Netherlands). April 2014.
http://prezi.com/t0nnxrvuu0ex/?utm_campaign=share&utm_medium=copy

Novel concepts in biologically-inspired climate management. Invited presentation to Georgia Tech Engineering, Atlanta, Georgia. September 2013.
http://prezi.com/awx49kt4d05c/?utm_campaign=share&utm_medium=copy&rc=ex0share

Novel concepts in biologically-inspired climate management. Invited presentation. Yahoo! Workshop: Exploring Innovation in Data Centeres through Biomimicry. Lockport, New York. April 2013.
http://prezi.com/56m6x6mu-_sg/lockport-presentation/

Design in Nature. Featured speaker at the Ben Gurion University SIDEER graduate student symposium on Design in Nature, Sede Boqer Campus. Gave two presentations and led two workshops. March 2013.
http://www.bgu.ac.il/BIDR/conf/sideergrads/SIDEER_symposium/homepage.html
http://prezi.com/iuiome7my5af/problem/
http://prezi.com/9fug9dzqxfty/dynamic_form/
http://prezi.com/atexgee49iqj/muddle/

Biomimetics: What, precisely, should be inspirational about living nature? Keynote speaker at Vienna Biocentre PhD Symposium Biomimetics: Inspired by Nature. November 2012.
http://www.vbc-phd-symposium.at/

Swarm intelligence and swarm cognition in mound-building termites. Invited speaker. IUSSI-NAS Symposium on Social Insects and the Emergence of Novelty: From Local Rules to Global Behavior. Entomological Society of America 2012 meeting, Knoxville, Tennessee. November 2012.

How, precisely, should we be inspired by living nature? Invited speaker at AmeriMech 2012. Mechanics in Biology. Virginia Tech. December 2012.
http://amerimech.esm.vt.edu/

A Multiplicity of Memory. Toward a Coherent Theory of Adaptation. Biological Information—New Perspectives. Cornell University. June 2011.

Biology's Second Law. Evolution, Purpose and Desire. Invited speaker. NASA Ames Research Center, Moffett Field, California. February 2011.
http://vimeo.com/user9528361/microbes-mind-forum

Fungal symbionts as mediators of water balance in *Macrotermes* colonies. Entomological Society of America Annual Meeting. San Diego, California. December 2010.

Emergent architecture in *Macrotermes* mounds. Wyss Institute, Harvard University. Cambridge, Massachusetts. October 2010. About 30 in attendance.

New Concepts in Termite-Inspired Design. Wyss Institute, Harvard University. Cambridge, Massachusetts. October 2010. About 100 in attendance.

New Concepts in Termite-Inspired Design. Center for Biologically Inspired Design, Georgia Tech University, and Perkins + Will Architects, Atlanta, Georgia. August 2010.

What is Life? Invited presentation to the Plenary session of International Board of Advisors meeting, John C Templeton Foundation. New York City. 8 June 2010. About 150 people in attendance.

Water, soils and architecture in *Macrotermes* colonies. Department of Zoology, Cambridge University. 27 May 2010. About 20 people in attendance.

New Concepts in Termite-Inspired Design. Social Biomimicry Conference. Arizona State University. 18-21 February 2010. About 200 people in attendance.

The Water Economy of *Macrotermes* colonies. University of Groningen. Groningen, The Netherlands. 11 September 2009. About 50 people in attendance.

Termite Mounds as Models of Swarm Cognition. Lessons for Realizing the Living Building. In symposium on From Insect Nests to Human Architecture. Venice, Italy. 23 September 2009. About 50 people in attendance.

The Termite Cube (exhibition). *Pestival. The Art of Being an Insect. Royal Festival Hall. Southbank Centre, London, UK. http://pestival.org/ 5-8 September 2009. Attendance about 100,000.*

Numerous informal presentations at Pestival. The Art of Being an Insect. Royal Festival Hall. Southbank Centre, London, UK. http://pestival.org/ 5-8 September 2009. Typically 30 people at any event.

The Air Conditioned Termite Nest Revisited. Presentation at Forum on Insect-Inspired Architecture. Pestival. The Art of Being an Insect. Royal Festival Hall. Southbank Centre, London, UK. http://pestival.org/ 5 September 2009. About 200 people in attendance.

Do Cheaters Prosper? Sordid Society and Public Good in Termite Colonies. SUNY Conversations in the Disciplines. Cornell University. 16 October 2009. About 50 people in attendance.

The Air-Conditioned Termite Nest Revisited. Pestival. A Celebration of Insects in Art and Design. Southbank Center. London, England. September 2009.

The Water Economy of *Macrotermes* Colonies. Department of Biology, University of Groningen. Groningen, The Netherlands. September 2009.

Do Cheaters Ever Prosper? Sordid Features of Sociality in Termite Colonies. Cooperation. Self Interest and Mutual Interest. SUNY Conversations in the Disciplines. Cornell University. Ithaca, New York. October 2009.

The Intentional Brain. Program in Neuroscience. Michigan State University, East Lansing. October 2009.

Beyond biomimicry: What termites can tell us about realizing the living building. The First International Congress on Industrialized, Integrated and Intelligent Construction (I3CON). Loughborough University, Loughborough, UK. May 2008.

Agents of Biological Design. EOS program. Binghamton University. 2007

Agents of Biological Design. Why are living things well-crafted for the things they do? 3oth Anniversary Retrospective Symposium on the Wistar Conference on Mathematical Challenges to the Neodarwinian Interpretation of Evolution. Boston, Massachusetts. 2007.

The Air Conditioned Termite Mound Revisited. Würzburg University (Germany). 2007

Termites, Water and Soils. Annual meeting of the Agricultural Scientific Society of Namibia. Windhoek, Namibia. 2006.

Emergent Homeostasis in Termite Mounds. A Template for Living Structures. 1st Annual Symposium on Biologically-Inspired Design. Council for Biologically Inspired Design. Georgia Institute of Technology (Georgia Tech), Atlanta, Georgia. 2006.

Gaia in Microcosm. Social insects as a metaphor for a homeostatic world. Symposium on The Gaia Theory. Model & Metaphor for the 21st Century, Northern Virginia Parks Board Authority. George Mason University, Arlington, Virginia. 2006.

Homeostasis, Intentionality and the Problem of Design in Biology. University of Massachusetts, Amherst. Biology Department Seminar. 2005.

Stigmergy and homeostasis in *Macrotermes* colonies. What's the connection? Cornell University, Ithaca. Jugatae Club Seminar. 2005.

Why do termites build mounds? Windhoek Wildlife Society. Windhoek, Namibia. 2005.

Membership and Service

Part of my role as a university professor is to serve in an advisory capacity to institutions. Here are some examples of my service.

Memberships Past or Present

American Association for the Advancement of Science.
American Physiological Society
American Geophysical Union
International Paleopsychology Project
The Darwin Project
Human Biology & Evolution Society
International Society for the History, Philosophy and Social Studies of Biology
Sigma Xi
Society for Integrative and Comparatve Biology

Service

Sigma Xi (Vice President, Syracuse Chapter. 1995-1996)
Sigma Xi (President, Syracuse Chapter. 1996-1997)
Sigma Xi (Past-President, Syracuse Chapter. 1997-1998)
Sigma Xi (Awards Chairman, Syracuse Chapter. 1998-1999)
Sigma Xi (Newsletter editor, Syracuse Chapter. 2003-present)
SUNY ESF (Executive Chair of the Faculty, 2002)
SUNY ESF (Chair of Academic Governance Technology Committee, 2015-2017)
SUNY ESF (Chair of Presidential Advisory Group on Biuilding a Media Culture at ESF (2016)
SUNY ESF (Chair of Presidential Adisory Group on developing a Biomimicry Bachelors Degree (2016)
Gobabeb. The Namib Research Institute. Webmaster (2019-present)

Representative Media, Service and Consulting (since 2000)

Media

Janet Mefford Today (4 September 2017)
Leigh Martinuzzi. The Hidden WHY Guy (6 September 2017).
The Dennis Prager Show (12 September 2017)
Michelle Mendoza Live from Seattle (Tech Tuesday). (12 September 2017).
Perry Marshall. Evolution 2.0 (15 October 2017).
The Eric Metaxas Show (23 October 2017).
Think with Kris Boyd (26 October 2017).
Al Kresta in the Afternoon (9 January 2018).
Provocative Enlightenment with Eldon Taylor (5 February 2018).
Rob Crowther. ID The Future Part 1 (12 March 2018).
Rob Crowther, ID The Future Part 2 (21 March 2018).
In the Market with Janet Parshall (with Stephen Meyer). (24 May 2018).

NPR Science Friday. Robot builders with bugs for brains. With Ira Flatow and Dr Justin Werfel. March 28, 2014.
This View of Life. This is the podcast / web platform for the Evolution Institute, David Sloan Wilson's provocative web site that explores the interface of evolutionary biology and religious faith (pending: recorded 1 February 2016).
National Geographic Online. Collective mind in the mound: How do termites build their huge structures? Profile of my termite research written by Ms Lisa Margonelli. Lisa Margonelli is an award-winning author and journalist (Oil on the Brain). She is currently writing a book on termites where I feature prominently. August 01, 2014.
BBC Radio 4 Material World. Termite engineering. With Quentin Cooper and Dr Rupert Soar. 2 June 2005.
BBC 4. Life in the undergrowth with David Attenborough. I was an expert consultant for the episode on social insects: (Programme 5. Supersocieties).
Beyond biomimicry: What termites can tell us about realizing the living building. Namibia Institute of Architecture, Windhoek, Namibia. 31 May 2009.
Consulted for a new program in biology and industry. Ardman Productions, UK
Consulted for BBC Natural History Unit, Bristol, UK
Consulted for the television documentary *Termites and the Triumph of Life*. Green Umbrella Productions (2000).
Consulted for an untitled program in development on termites. Mark Rubens for the series *Equinox* (2000).
Consulted for BugWorld for an untitled program in development on termites. Oxford Scientific Films.
Consulted for Museum of Natural History, Vienna, Austria, on structure of termite mounds.
Consulted for the National Geographic Society series Wildlife Detectives
Consulted for Paramount Pictures *A Soldiers Story*.
Consulted for *The Machinery of Life.* Sea Studio Foundation, Monterey California.
Consulted for children's book on savanna ecology by Ms Laurie Toupin.
Consulted for the BBC Documentary *Life in the Undergrowth,* BBC Natural History Unit.
Consulted for a forthcoming documentary on termites. Burning Gold Productions. Bristol, UK.
Expert witness for National Waste Service, Toronto, Canada
Interviewed for *Conservation* magazine.
Interviewed for *Material World* (BBC4 radio series)
Interviewed for *Insect Soundings* (BBC4 radio)
Interviewed for *Living on Earth* (WGBH Boston)
Featured on *Literary Café*. (American Freedom Alliance. Los Angeles).
Consulted for special Mother's Day broadcast, "The Termite Queen" for the NPR program *The Kitchen Sisters.* 2011

Advisory service

Served on Science Advisory Board, Cheetah Conservation Fund, Namibia
Served on Science Advisory Board, Nidiant Corporation, USA
Served on Advisory Panel to the European Science Foundation Panel on The Future of the Extended Phenotype, Copenhagen, Denmark
Served on Advisory Panel to the Army Research Office, Division of Cognitive Neueoscience, on Basic Neurosciences Research

Reviewing service (Books)

Harvard University Press
University of California Press
Benjamin Cummins Publishers
University of Chicago Press

Reviewing service (Journals)

Applied Physics Letters
Behavioral Ecology & Sociobiology
Biology and Philosophy
Bulletin of Mathematical Biology

Comparative Biochemistry & Physiology
Die Naturwissenschaften
Functional Ecology
Journal of Comparative Physiology
Journal of Experimental Biology
Journal of Functional Ecology
Journal of Thermal Biology
Nature
Physical Review Letters
Physiological and Biochemical Zoology
Proceedings of the Royal Society of London. Biological Sciences
Quarterly Review of Biology
The Ibis
The Ostrich

Reviewing service (Funding agencies)

John Templeton Foundation USA)
Natural Environment Research Council (UK)
National Research Foundation (South Africa)
National Science Foundation
Earthwatch Fellowship Program
Israel Science Foundation
Environmental Protection Agency (STAR Fellowship Program)
PMI2 Connect Collaborative Research Awards (UK)
The MacArthur Foundation
Human Frontier Science Program

Technical reports

This project was undertaken as an expert consultant in a lawsuit in Ontario, Canada, between a waste disposal company and a forest products company.

J S Turner. 2006. Termite-Associated Risks to Velcan Forest Products Arising from a Waste Transfer Facility to be Built and Operated by National Waste Services. Report in support of expert testimony before the Ontario Municipal Board. Case PL050401.

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