Barbara L. Finlay Curriculum Vitae September 15, 2015

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Date of birth: October 25, 1950, Pittsburgh, Pennsylvania, USA

Two children, Will and Laura

Education: B.A. 1972 Oberlin College

Psychobiology

Ph.D. 1976 Massachusetts Institute of Technology

Brain and Cognitive Sciences

Employment

Cornell University

Assistant Professor, Department of Psychology 1976-1982.
Associate Professor, Department of Psychology, 1982 1988
Professor, Department of Psychology, Cornell University, 1988 –
Appointed to Section of Neurobiology and Behavior, 1998; resigned 2006
Professor of Psychology in Psychiatry, Adjunct, Weill-Cornell Medical College 2009-14

Graduate Field Memberships: Psychology, Neurobiology and Behavior, Cognitive Sciences

Director of Graduate Studies, Field of Psychology 1991-95, 2004-06 Associate Chair, Department of Psychology 1993-94 Chair, Department of Psychology, 1996- 2001

Visiting Appointments

Visiting Scientist, Oxford University, University Laboratory of Physiology, 1984
Honorary Visiting Fellow, University of New South Wales, Australia, 1986
Visiting Scientist, "Cerveau et Vision", INSERM, Lyon, France. 1995
Visiting Scientist, Federal University of Parà, Belèm, Brazil, 1996Distinguished Visitor, University of Western Australia, 2002
Guest of the Rector, Wissenschaftskolleg zu Berlin, 2002-03
Neurosciences and Cell Biology Graduate Teaching Program, University of Parà, Belèm,
Brazil 2009

Birkbeck College, University of London, 2010 Adjunct Professor, Northeastern University, 2014

Honors and Awards:

Phi Beta Kappa, Sigma Xi 1972

National Science Foundation Predoctoral Fellowship, 1972-75.

Young Investigator Travel Award, Association for Research in Vision and Ophthalmology, 1976.

Research Career Development Award, 1983-88.

Scientific and Corresponding Member of the Rodin Remediation Academy, 1990-

Elected Fellow of the AAAS, 1998

William R. Kenan Jr. Chair of Psychology, 1999-

Elected to Electorate Nominating Committee, Psychology, AAAS, 2006-09

Marie Curie Visiting Professorship, 2007, 2012

Elected Fellow of Association for Psychological Science, 2010

First place, Limestone Creek Hunter Pace, 2002, Tioughnioga Ruritan Hunter Pace 2005

Professional Activities

Editorial

Editor, Behavioral and Brain Sciences 2002-

Editorial Boards: *Brain, Behavior and Evolution*, 1995-2002, 2009- present; *Visual Neuroscience*, 1995-98; *Developmental Science* 2001-2002

Ad hoc reviews: Journal of Comparative Neurology; Vision Research; American Journal of Physical Anthropology; American Anthropologist; Physiology and Behavior; Anatomy and Embryology; Behavioral Brain Research; Journal of Neurobiology; Neuroscience; Neuroscience Letters; Journal of Neuroscience; Experimental Eye Research; European Journal of Neuroscience; Journal of Morphology; Brain Research; Journal of Neurophysiology; New England Journal of Medicine; Science; Proceedings of the National Academy of Sciences; Trends in Cognitive Sciences; Biological Reviews; Proceedings of the Royal Society: Biological Sciences; Nature; Frontiers in Neuroscience, Oxford University Press, Elsevier, Sinauer

International advisory committees

Human Frontiers Science Program, Review Committee for Postdoctoral Fellowships, 2008-11

National advisory committees:

National Institutes of Health, site visitor, 1985-86

Behavioral Neurobiology Subcommittee, National Institute of Mental Health, 1987-91 Special Review Committee for Minority Training and Minority Institutions Research Development, ADAMHA, 1990

Special Review Committee, NIMH, Developmental Studies of the Cerebral Cortex, 1994 NIMH Workshop "Meeting future needs for neuroscientists and behavioral scientists in mental health research" 1996

MacArthur Foundation Planning Initiative in Plasticity and Early Development, 1997 NSF, Advisory Panel for the Knowledge and Distributed Intelligence Program, 1998 NIH, Multi-Institute Training Grant ad hoc Review Committee, 1999 NIH, Multi-Institute Training Grant ad hoc Review Committee, 2002 NIMH, ARRA "Grand Opportunities" Review Committee, 2009 NSF Brain Maps Advisory Committee: Phylogenetic Principles of Brain Structure and Function Janelia Farms Research Campus, 2013

Institutional review committees:

MIT Corporation Visiting Committee for Whitaker College 1990-94
Review Committee for Psychology and Psychobiology, Hamilton College, 1992
External review committee, Department of Cognitive Science, UC San Diego, 2001
External review Committee, Institute of Neuroscience, University of Texas at Austin, 2001
Outside examiner, School of Biology, University of Western Australia, 2005
External reviewer: Paul Flechsig Institute of Brain Research, University of Leipzig 2006

Professional associations and executive positions

Current professional memberships: Society for Neuroscience, J.B. Johnston Club, International Society for Neuroethology, Association for Psychological Science

Councilor, Central New York State Society for Neuroscience, 1979-1982, 1988. Executive Committee, J.B. Johnston Club for Evolutionary Neurobiology 2010-13

University and Department Committeeships

University:

Human Subjects Committee, 1978-80

Curator, Wilder Brain Collection 1979- present

Animal Welfare Committee, 1981-82

Faculty Council of Representatives 1984-85

Dean's Committee on Appointments, 1989-1993, 2007 -

Ad hoc committees on appointments, 1991-1994

Academic Integrity Board, 1994-99

Curriculum Committee, 1999-2001

Member-at-Large, General Committee of the Graduate School 2005-2009

Faculty Senate, 2010-12

Multiple *ad hoc* tenure review committees, 1988-

Department and Field:

Graduate Executive Committee, 1976-1995

Programs Chair, 1985-1991

Department Executive Committee, 1985-88

Multiple Search Committee 1977-

Grant Support

Research

National Science Foundation, PI, "Adaptive responses to brain trauma", 1977-80,

National Science Foundation, PI, "Control of convergence in the developing mammalian brain", 1980-83

Women's Career Development Fund, Cornell University, 1983

National Institutes of Health Research Award, PI "Neuron death in central nervous system development" 1983-88.

Renewed 1988 -92

Renewed 1993 -97

Renewed 1997 –02 as "Connectional architecture of the developing isocortex"

National Science Foundation, PI, "Development and evolution of the primate retina- US Brazil Collaboration." 1997-2001

Distinguished Visitor Award (from University of Western Australia) 2002

National Science Foundation, PI "Collaborative Research: Evolution and Development of Retinal Projections" 2002-2008 (with Silveira, Cepko)

National Science Foundation, Co-PI (with B. Clancy) "Collaborative Research: A Web-Based System for Modeling and Predicting Neurodevelopment Across Mammalian Species" 2009-2013

Training

Clinical Neuropsychology Training Grant, NIMH, 1979-83 Acting Director, 1982-1983.

Pew Program in Undergraduate Science Education: Faculty/Student Summer Research Proposal, 1992, 1993

Training Grant, Director "Multidisciplinary training in developmental psychology", NIMH, 1990-95

Renewed 1995-01

Hughes Scholar Sponsor, 1994, 1995, 2003

Teagle Summer Scholars, 1996

Training Grant Co-Director (with BJ Casey) "Multidisciplinary training in development and learning" NIH/ NICHD 2009-15

NICHD NRSA to Christine Charvet, (sponsor) "The developmental origins of cerebral cortical expansion". 2011-14

Outreach

Cornell Faculty Fellow-in-Service Award. "Improving science education in local elementary schools" 1992

Major research interests:

Evolution and development of sensory systems and the cerebral cortex

Teaching:

Cognitive Neuroscience (graduate-undergraduate).

Developmental Biopsychology (graduate-undergraduate).

Various graduate seminars in cognitive neuroscience and central nervous system anatomy, development, and electrophysiology.

Publications

Database: "Translating Neurodevelopmental time across Mammalian Species" <u>www.translatingtime.net</u>

Books Edited:

- Chalupa, L.M. and Finlay, B.L. *Development and Organization of the Retina: From molecules to function* Plenum Press, New York 1998.
- Finlay, B.L., Innocenti, G. and Scheich, H. Eds. *The Neocortex: Ontogeny and Phylogeny* NATO ASI series, Plenum Press: New York 1991
- Finlay, B.L. and Sengelaub, D.R. Eds. *Development of the Vertebrate Retina* Plenum Press: New York 1989

Journal articles and book chapters:

- Finlay, B.L. and Nielsen, V. (1968) Visual performance as a function of rotational eye movement training. *Optical Journal & Review of Optometry*, 105: 29-31.
- Poppei, J., Finlay, B.L. and Tedford W. (1970) Proactive inhibition in short-term memory. *Journal of Experimental Psychology*, 83: 189-190.
- Finlay, B.L., Schiller, P.H. and Volman, S.F. (1976) Meridional differences in orientation sensitivity in monkey striate cortex. *Brain Research*, 105: 350-352.
- Schiller, P.H., Finlay, B.L. and Volman, S.F. (1976) Short-term response variability of monkey striate neurons. *Brain Research* 105: 347-349.
- Schiller, P.H., Finlay, B.L. and Volman, S.F. (1976) Quantitative studies of single cells in monkey striate cortex: I. The spatio-temporal organization of receptive fields. *Journal of Neurophysiology*, 39: 1288-1319.
- Schiller, P.H., Finlay, B.L. and Volman, S.F. (1976) Quantitative studies of single cell properties in monkey striate cortex: II. Orientation specificity and ocular dominance. *Journal of Neurophysiology*, 39: 1320-1333.
- Schiller, P.H., Finlay, B.L. and Volman, S.F. (1976) Quantitative studies of single cells in monkey striate cortex: III. Spatial frequency. *Journal of Neurophysiology*, 39: 1334-1351.
- Finlay, B.L., Schiller, P.H. and Volman, S.F. (1976) Quantitative studies of single cells in monkey striate cortex: IV. Corticotectal cells. *Journal of Neurophysiology*, 39: 1352-1361.
- Schiller, P.H., Finlay, B.L. and Volman, S.F. (1976) Quantitative studies of single cell properties in monkey striate cortex: V. Multivariate statistical analyses and models. *Journal of Neurophysiology*, 39: 1362-1374.
- Finlay, B.L., Schneps, S.E., Wilson, K.G. and Schneider, G.E. (1978) Topography of visual and somatosensory projections to the superior colliculus of the golden hamster. *Brain Research*, 142: 223-235.
- Finlay, B.L., Wilson, K.G. and Schneider, G.E. (1979) Anomalous ipsilateral retinal projections in Syrian hamsters with neonatal lesions: topography and functional capacity. *Journal of Comparative Neurology*, 183: 721-740.

- Finlay, B.L., Schneps, S.E. and Schneider, G.E. (1979) Orderly compression of the retinotectal projection following partial tectal ablation in the newborn hamster. *Nature*, 280: 153-154.
- Finlay, B.L. (1979) Experimental manipulations of the development of ordered projections in the mammalian brain. In: *Developmental Neurobiology of Vision*, R.A. Freeman, Ed. Plenum Press: New York. pp391-402
- Finlay, B.L. and So, K.F. (1979) Altered retinotectal topography in hamsters with neonatal tectal slits. *Neuroscience*, 4: 1119-1128.
- Finlay, B.L., Marder, K. and Cordon, D. (1980) Acquisition of visuomotor behavior after neonatal tectal lesions in the hamster: The role of visual experience. *Journal of Comparative and Physiological Psychology*, 94: 506-518.
- Mort, E., Finlay, B.L. and Cairns, S. (1980) The role of the superior colliculus in visually-guided locomotion and orienting in the hamster *Physiological Psychology*, 8: 20-28.
- Finlay, B.L., Sengelaub, D.R., Berg, A.T. and Cairns, S.J. (1980) A neuroethological approach to hamster vision. *Behavioral Brain Research*, 1: 479-496.
- Finlay, B.L. and Cairns, S.J. (1981) The relationship of aberrant retinotectal projections to visual orienting following neonatal tectal damage in hamster. *Experimental Neurology*, 71-81
- Finlay, B.L. and Sengelaub, D.R. (1981) Toward a neuroethology of mammalian vision: ecology and anatomy of rodent visuomotor behavior *Behavioural Brain Research*, 3: 133-149.
- Sengelaub, D.R. and Finlay, B.L. (1981) Early removal of one eye reduces normally occurring cell death in the remaining eye. *Science*, 213: 573-574.
- Sengelaub, D.R. and Finlay, B.L. (1982) Cell death in the mammalian visual system during normal development: I. Retinal ganglion cells. *Journal of Comparative Neurology*, 204: 311-317.
- Finlay, B.L., Berg, A.T. and Sengelaub, D.R. (1982) Cell death in the mammalian visual system during normal development: II. Superior colliculus. *Journal of Comparative Neurology*, 204: 318-324.
- Finlay, B.L. and Slattery, M. (1983) Local differences in amount of early cell death in neocortex predict adult local specializations. *Science*, 219: 1349-1351.
- Janowsky, J.S. and Finlay, B.L. (1983) Cell degeneration in the early development of forebrain and cerebellum. *Anatomy and Embryology*, 167: 439-447.
- Sengelaub, D.R., Windrem, M.S. and Finlay, B.L. (1983) Alterations of adult retinal ganglion cell distribution following early monocular enucleation. *Experimental Brain Research*, 52: 269-276.
- Finlay, B.L. and Berian, C.A. (1985) The hamster visual and somatosensory systems. *The Hamster: Reproduction and Behavior*, H. I. Siegel, Ed. Plenum: New York 409-431.
- Sengelaub, D.R., Jacobs, L. and Finlay, B.L. (1985) Regional differences in normally occurring cell death in the developing hamster lateral geniculate nuclei. *Neuroscience Letters*, 55: 103-108.
- Wikler, K.C., Raabe, J.I. and Finlay, B.L. (1985) Temporal retina is preferentially represented in the early retinotectal projection in the hamster. *Developmental Brain Research*, 21: 152-155.

- Sengelaub, D.R., Dolan, R.P., and Finlay, B.L. (1986) Cell generation, death and retinal growth in the development of the hamster retinal ganglion cell layer. *Journal of Comparative Neurology*, 246: 527-543.
- Janowsky, J.S. and Finlay, B.L. (1986) Normal neuron loss and axon retraction in early development: Their significance for the outcome of perinatal brain damage. *Developmental Medicine and Child Neurology*, 28: 375-389
- Finlay, B.L., Sengelaub, D.R., and Berian, C.A. (1986) Control of cell number in the developing visual system: I. Effects of monocular enucleation. *Developmental Brain Research*, 28: 1-10
- Raabe, J.I., Windrem, M. S., and Finlay, B.L. (1986) Control of cell number in the developing visual system: II. Visual cortex ablation. *Developmental Brain Research*, 28: 11-22
- Wikler, K.C., Kirn, J., Windrem, M.S., and Finlay, B.L.(1986) Control of cell number in the developing visual system: III. Partial tectal ablation. *Developmental Brain Research*, 28: 23-32
- Finlay, B.L., Wikler, K.C. and Sengelaub, D.R. (1987) Regressive events in neurogenesis and scenarios for vertebrate brain evolution. *Brain, Behavior and Evolution*, 30:102-117
- Henderson, Z., Finlay, B.L., and Wikler, K.C. (1988) Development of ganglion cell topography in the ferret retina. *Journal of Neuroscience*, 8: 1194-1205
- Pallas, S.L., Gilmour, S., and Finlay, B.L. (1988) Control of cell number in the developing neocortex: I. Effects of early tectal ablation. *Developmental Brain Research*, 43: 1-11
- Windrem, M.S., Jan de Beur, S. and Finlay, B.L. (1988) Control of cell number in the developing neocortex: II. Effects of corpus callosum transection. *Developmental Brain Research* 43: 13-22
- Wikler, K.C. and Finlay, B.L.(1989) Developmental heterochrony and the evolution of species differences in retinal specializations. in: *Development of the Vertebrate Retina*, Finlay, B.L. and Sengelaub, D.R. eds., Plenum Press: New York . pp. 227-246
- Finlay, B.L. and Pallas, S.L. (1989) Control of cell number in the developing visual system. *Progress in Neurobiology*, 32: 207-234.
- Kelling, S.T., Sengelaub, D.R., Wikler, K.C., and Finlay, B.L. (1989) Differential elasticity of the growing retina and the development of the area centralis. *Visual Neuroscience*, 2: 117-120.
- Pallas, S.L. and Finlay, B.L. (1989) Conservation of receptive field properties of superior colliculus cells after developmental rearrangements of retinal input. *Visual Neuroscience* 2: 121-135
- Wikler, K.C., Perez, G. and Finlay, B.L. (1989) Neurogenesis in the gerbil retina: a comparative analysis of the effects of developmental duration on retinal conformation. *Journal of Comparative Neurology*. 285: 157-176
- Mitrofanis, J. and Finlay, B.L. (1990) Catecholaminergic neurons in the adult and developing retinas of the hamster and gerbil. *Journal of Comparative Neurology*. 292: 480-494

- Finlay, B.L. (1990) Master mechanic, may I? Evolutionary permission versus evolutionary pressure. Commentary on Dean Falk's "Brain evolution in Homo: The radiator theory" in *Behavioral and Brain Sciences* 13: 353-354.
- Finlay, B.L. (1991) The neocortex *Encyclopedia of Human Biology* M. Yelles ed., Academic Press: San Diego. revised and reprinted 1994.
- Finlay, B.L. (1991) Control of cell number and type in the developing and evolving neocortex. In: Finlay, B.L., Innocenti, G and Scheich, H. Eds. *The Neocortex: Ontogeny and Phylogeny* NATO ASI series, Plenum Press: New York pp. 33-41
- Pallas, S. and Finlay, B.L. (1991) Compensation for population size mismatches in the hamster retinotectal system: alterations in the organization of retinal projections. *Visual Neuroscience* 6: 71-281
- Windrem, M.S., and Finlay, B.L. (1991) Thalamic ablations and neocortical development: alterations in neocortical cell number and cytoarchitecture. *Cerebral Cortex* 1: 1-24
- Miller, B., Windrem, M.S. and Finlay, B.L. (1991) Thalamic ablations and neocortical development: alterations in thalamic and callosal connectivity. *Cerebral Cortex* 1: 25-49
- Woo, T.U., Beale, J.M. and Finlay, B.L.(1991) Dual fate of subplate neurons in the rodent. *Cerebral Cortex* 1: 173-200
- Finlay, B.L. (1992) Cell death and the creation of regional differences in cell numbers. *Journal of Neurobiology* 23: 1159-1171.
- Finlay, B.L. (1993) Selective cell death. Chapter 42 In: *The Principles and Practice of Ophthalmology* Fulton, A.B. and Wright, J.D. eds. Saunders: New York
- Xiong, M.-J. and Finlay B.L. (1993) Changes in synaptic density after developmental compression or expansion of retinal input to the superior colliculus. *Journal of Comparative Neurology* 330: 1-9
- Miller, B., Chou, L. and Finlay, B.L. (1993) The early development of visual corticothalamic and thalamocortical projections in the golden hamster. *Journal of Comparative Neurology* 335: 16-41
- Miller, B., Nagy, D., Finlay, B.L., Chance, B., Kobayashi, A. and Nioka, S. (1993) Consequences of reduced cerebral blood flow in brain development: I. Gross morphology, histology and callosal connectivity. *Experimental Neurology* 124: 326-342
- Nioka, S.A., Zaman, A., Miller, B., Finlay, B.L., and Chance, B. (1993) Consequences of reduced cerebral blood flow in brain development: II. Retardation of neurological outcomes and phosphorus metabolism. *Experimental Neurology* 124: 343-350
- Finlay, B.L and B. Miller. (1993) Regressive events in early cortical maturation: Their significance for the outcome of early brain damage. *Dyslexia and Development: Neurobiological Aspects of Extraordinary Brains* A.M. Galaburda, ed. Harvard University Press pp.1-20
- Finlay, B.L. (1994) The neocortex *Encyclopedia of Human Behavior* V.S. Ramachandran, ed., Academic Press: San Diego. Revised and reprinted 1997.
- Xiong, M.-J., Pallas, S.L., Lim, S. and Finlay, B.L. (1994) Regulation of the size of axon arbors of retinal ganglion cells by tectal target availability: mechanisms of

- compression and expansion of the retinotectal projection. *Journal of Comparative Neurology* 344: 581-597
- Finlay, B.L. and Darlington, R.B. (1995) Linked regularities in the development and evolution of mammalian brains. *Science* 268: 1578-1584
- Woo, T.-U., Niederer, J.K. and Finlay, B.L. (1996) Cortical target depletions and the developing lateral geniculate nucleus: implications for trophic dependence. *Cerebral Cortex* 6: 446-456
- Woo, T.U. and Finlay, B.L.(1996) Cortical target depletion and ingrowth of geniculocortical axons: implications for cortical specification. *Cerebral Cortex* 6: 457-469
- Troilo, D.B., Xiong, M., Crowley, J.C. and Finlay, B.L. (1996) Factors controlling the dendritic arborization of retinal ganglion cells. *Visual Neuroscience* 13: 721-734
- Xiong, M. and Finlay, B.L. (1996) What do developmental mapping rules optimize? *Progress in Brain Research* 112: 350-361
- Niederer, J., Kingsbury, M. and Finlay B.L. (1997) What about isocortex can be rewired and reconfigured? in *Research and Perspectives in Neuroscience* Mervaille, J., Christen, Y and Galaburda, A.M. eds. Springer-Verlag pp 121-134
- Finlay, B.L. (1997) So many problems, so little time: evolution and the dendrite. Commentary on Quartz and Sejnowski, "The neural basis of cognitive development: A constructivist manifesto" *Behavioral and Brain Sciences* 20: 564-565.
- Finlay, B.L. and Snow, R.L. (1998) Scaling the retina, micro and macro. In: *Development and Organization of the Retina: From molecules to function* Plenum Press, New York L.M. Chalupa and B.L. Finlay, eds. pp 245-258
- Finlay, B.L., Hersman, M.N. and Darlington, R.B. (1998) Patterns of vertebrate neurogenesis and the paths of vertebrate evolution. *Brain, Behavior and Evolution* 52: 232-242
- Finlay, B.L. and Niederer, J.K. (1999) Neural Development *MIT Encyclopedia of Cognitive Science*. R.A. Wilson and F.C. Keil, eds. MIT Press, Cambridge pp 595-596
- Darlington, R.B., Dunlop, S.A. and Finlay, B.L. (1999) Neural development in metatherian and eutherian mammals: variation and constraint. *Journal of Comparative Neurology* 411: 359-368
- Kingsbury, M.A., Graf. E. and Finlay, B.L.(2000) Visual subcortical projections during development and following neonatal thalamic ablation in the hamster. *Journal of Comparative Neurology*. 423: 1-14
- Clancy, B., Darlington, R.B. and Finlay, B.L. (2000) The course of human events: predicting the timing of primate neural development. *Developmental Science* 3: 57-66
- Silveira, L.C.L., Yamada, E. S., Franco, E.C.S. and Finlay, B. L. (2000) The specialization of the owl monkey retina for night vision. *Colour Research and Application* 26: 118-122
- Kaskan, P. and Finlay, B. L. (2001) Encephalization and its developmental structure: how many ways can a brain get big? *Evolutionary Anatomy of the Primate Cerebral Cortex*. T. Sanderson, Ed. Cambridge University Press pp. 14-29

- Kingsbury, M. A. and Finlay, B. L. (2001) The cortex in multidimensional space: where do cortical areas come from? Commentary Article. *Developmental Science* 4: 125-156
- Finlay, B.L., Darlington, R.D. and Nicastro, N. (2001) Developmental structure of brain evolution. *Behavioral and Brain Sciences* 24: 263-308 (with commentary and response)
- Franco, E.C.S., Finlay, B.L., Silveira, L.C.L., Yamada, Y.C., and Crowley, J.C. (2001) Conservation of absolute foveal area in New World primates: A constraint on eye size and conformation. *Brain, Behavior and Evolution* 56: 276-286
- Clancy, B., Darlington, R.B. and Finlay, B.L. (2001) Translating developmental time across mammalian species. *Neuroscience* 105: 7-17
- Clancy, B.E. and Finlay, B.L. (2001) Neural correlates of early language learning. In M. Tomasello and E. Bates (Eds.) *Essential Readings in Language Development.* pp 307-330
- Bates, E., Thal, D., Finlay, B.L., & Clancy, B. (2002). Early language development and its neural correlates. In F. Boller & J. Grafman (Series Eds.) & S.J. Segalowitz & I. Rapin (Vol. Eds.), *Handbook of Neuropsychology, Vol. 8: Child neurology* (2nd ed., pp. 109-176). Amsterdam:Elsevier Science B.V.
- Kingsbury, M.A., Lettman, N.A., and Finlay B.L (2002) Reduction of early thalamic input alters adult corticocortical connectivity *Developmental Brain Research* 138: 35–43
- Finlay, B.L., Clancy, B. E. and Kingsbury, M.A. (2003) The developmental neurobiology of early vision. In *Advances in Infancy Research* S. P. Johnson and B. Hopkins, eds, Ablex Press pp 1-42
- Finlay, B.L. (2004) The Calvinist cortex: penetrating evolutionary predestination. Commentary on "Cortex, countercurrent context, and dimensional integration of lifetime memory" by B. Merker. *Cortex* 40: 577-579
- Finlay, B.L. (2005) Rethinking developmental neurobiology. In: *Beyond Nature-Nurture: Essays in Honor of Elizabeth Bates.* M. Tomasello and S. Slobin, eds. Lawrence Earlbaum Publishers pp195-219
- Kaskan, P., Franco, C., Yamada, E., Silveira, L.C.L., Darlington, R. and Finlay, B.L. (2005) Peripheral variability and central constancy in mammalian visual system evolution. *Proceedings of the Royal Society: Biological Sciences* 272: 91-100
- Finlay, B. L. (2005) Brain and behavioral development (II): cortical . *Cambridge Encyclopedia of Child Development*, B. Hopkins, (Ed.). Cambridge University Press 296-305
- Bradshaw, G. B. and Finlay, B.L. (2005) Natural symmetry. Nature 435: 149
- Finlay, B. L., Silveira, L.C.L. and Reichenbach, A. (2005) Comparative aspects of visual system development. In: *The Structure, Function and Evolution of the Primate Visual System* J. Kremers, ed. John Wiley and Sons pp. 37-72
- Finlay, B.L. (2005) Not there yet. Commentary on "Relative size versus controlling for size: misunderstandings about ratios in research on sexual dimorphism in the human corpus callosum. *Current Anthropology* 36
- Finlay B.L., Cheung, D. and Darlington, R.B. (2005) Developmental constraints on or developmental structure in brain evolution? In *Attention and Performance XXI*

- "Processes of Change in Brain and Cognitive Development" Munakata, Y. and Johnson, M. Oxford University Press pp 131-162
- Finlay, B.L. Yost, J.E., and Cheung, D. (2006) Developmental disorders and evolutionary expectations: mechanisms of resilience. In: *Development of the Central Nervous System: Effects of Alcohol and Nicotine* M. Miller, ed. Oxford University Press 104-120
- Finlay, B.L. and Brodsky, P.B. (2006) Cortical evolution as the expression of a program for disproportionate growth and the proliferation of areas. *Evolution of Nervous Systems* J.H. Kaas, ed. Elsevier: Oxford University Press pp. 73-96
- Finlay, B.L. (2007) Endless minds most beautiful. *Developmental Science* 10: 30-34 Finlay, B.L. (2007) *E pluribus unum:* Too many unique human capacities and too many theories. In: *The Evolution of Mind: Fundamental Questions and Controversies.* S. Gangestad and J. Simpson eds. Guilford Press pp. 301-304.
- Reep, R., Darlington, R.B. and Finlay, B.L. (2007) The limbic system in mammalian brain evolution. *Brain. Behavior and Evolution* 70: 57-70
- Clancy, B., Kersh, B, Hyde, J., Anand, K.J.S, Darlington, R.B. and Finlay, B.L. (2007) Webbased method for translating neurodevelopment from laboratory species to humans. *Neuroinformatics* 5: 79-94
- Chalfin, B.P., Cheung, D.T., Muniz, J.A.P.C., Silveira, L.C.L. and Finlay, B.L. (2007) Scaling of neuron number and volume of the pulvinar complex in New World primates: comparisons with humans, other primates and mammals. *Journal of Comparative Neurology* 504: 265-274
- Clancy, B., Finlay, B.L., Darlington, R.B. and Anand, K.J.S. (2007) Extrapolating brain development from experimental species to humans. *Neurotoxicology* 28: 931-937
- Finlay, B.L. and Clancy, B. (2008) Chronology of the development of the mouse visual system. *Eye, Retina and Visual System of the Mouse* L. Chalupa and R.W. Williams, eds. MIT Press. pp 257-265.
- Finlay, B.L. (2008) The developing and evolving retina: using time to organize form. *Brain Research* 1192: 5-16
- Finlay B.L. (2008) Brain evolution: developmental constraints and relative developmental growth. In L.R. Squire, Editor-in-Chief *Encyclopedia of Neuroscience* Academic Press, Oxford vol. 2 pp. 337-345
- Finlay, B.L. (2008) Evolution, development and emerging universals. *Language Universals* M. Christiansen, C. Collins and S. Edelman eds., Oxford University Press.
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- Finlay, B.L and Syal, S. (2014) The pain of altruism. *Trends in Cognitive Sciences* 18: 615-617 doi:10.1016/j.tics.2014.08.002
- Charvet, C.J. and Finlay, B.L (2014) Evo-devo and the primate isocortex: the central organizing role of intrinsic gradients of neurogenesis. Karger Symposium "The Problem of Human Brain Evolution: Integrating Diverse Approaches" *Brain, Behavior and Evolution* 84:81-92 doi: 10.1159/000365181
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- Muniz, J. A. C. P. de Athaide L.M., Gomes B.D., Finlay B.L., Silveira, LCL (2014) Ganglion cell and displaced amacrine cell density distribution in the retina of the howler monkey (*Alouatta caraya*). PLoS ONE 9(12): e115291. doi:10.1371/journal.pone.0115291
- Finlay, B.L. and Uchiyama, R. (2015) Developmental mechanisms channeling cortical evolution. *Trends in Neurosciences* 38:69-76
- Finlay, B.L. (2015) It hurts to be human: why pain is fundamentally different for us *New Scientist* 3020:
- Cahalane, D. J. and Finlay B.L. (In press) Brain evolution and development: allometry and arealization of the cortex. *Handbook of Evolutionary Neuroscience* S.V. Shepherd, ed., Wiley-Blackwell
- Charvet, C.J. and Finlay, B.L. (In press) Evolving the developing cortex: conserved gradients of neurogenesis gracefully scale and channel new functions to their cortical representations in primates: *Evolutionary Developmental Anthropology: A*

- *Postgenomic Approach to Understanding Primate and Human Evolution* J. Boughner C Rolian, eds.
- Charvet, C.J, Reep, R.L. and Finlay, B.L. (In press) Evolution of cytoarchitectural landscapes in the mammalian isocortex: Sirenians (*Trichechus manatus*), carnivores, rodents and primates. *Journal of Comparative Neurology*
- Darlington, R.B., Charvet, C.J. and Finlay, B.L. Extinctions and their consequences for evolutionary correlations. (Manuscript).
- Bastille, I, Charvet, C.J. and Finlay, B.L. Avian versus mammalian patterns in visual system evolution. In preparation.
- Cheung, D.T., Muniz, J.A.P.C., Crowley, J.C., Parsons, M.E., Yamada, E., Chalfin, B.P., Silveira, L.C.L. and Finlay B.L. Scaling the visual system: placing primate retina and brain organization in its mammalian and vertebrate context. In preparation.

Media and media reviews:

- Finlay, B.L. Snapshots of brain research in the clinic: Review of *The Hidden Universe: The Brain*, CRM, McGraw-Hill Films, Teaching of Psychology, 5, (1978), 109.
- Finlay, B.L. Neuroscientists do real experiments in psychology: Review of *Classical experiments in behavioral neuropsychology*. Harper and Row Media Programs. Contemporary Psychology, 25, (1980), 424-425
- Finlay, B.L. Review of *Primate Brain Evolution: Methods and Concepts*, Armstrong and Falk, Eds. American Anthropologist, 85, (1983), 156-157.
- Finlay, B.L. Review of *Doubling the Brain: On the Evolution of Brain Lateralization and Its Implications for Language*. Janet Dunaif-Hattis. *American Anthropologist*, 88, (1985), 226-227.
- Finlay B.L. Review of *Development of Order in the Visual System*, S.R. Hilfer and J.B. Sheffield, eds. In: Quarterly Review of Biology, 62 (1987) 119
- Finlay, B.L. (1992) Review of *Development of the Visual System*, Lam, D.M and Shatz, C.J., eds. In: Quarterly Review of Biology, 67: 80-81

Regular contributor "Ask a Scientist" Ithaca Journal 2000-

Interview on brain evolution "Spectrum" New Zealand Public Radio May 2006

"Extreme Collections" section of the Wilder Brain Collection, Travel Channel, August 2009

Multiple contributions, "The Dish" Andrew Sullivan, Atlantic Monthly 2010-

"Neuroscientists talk shop" USTA Podcast, 2012

Finlay, B.L. Review of *Visual Ecology* T.W. Cronin, S. Johnsen, N. J. Marshall and E. J. Warrant Princeton University Press, in *Perception* 2015 44: 604-605

Selected contributed papers at conferences (of several hundred):

Neurosciences Research Program Workshop, 1975. Plasticity in retinotectal connections. Edds, Jr., M.V., Schneider, G.E., Gaze, R.M. and Irwin, L.N. Neurosciences Research Program Bulletin, 17, (1979).

- NATO Advanced Study Institute, Developmental Neurobiology of Vision, Crete, Greece, 1978. "Experimental manipulations of the development of ordered projections in the mammalian brain".
- NATO Advanced Study Institute, Natural and experimentally induced rearrangements of neuronal connections, Varenna, Italy, 1981. "Cell death in mammalian central nervous system development"
- Cornell Conference on Ecological Approaches to Visual Perception 1991. "In this best of all possible worlds..."
- J.B. Johnston Club, 1994 "A Model for the Metamorphosis of Mice to Men: Developmental Structure in the Allometry of Brain Parts" with Richard Darlington
- European Conference on Visual Perception 2006 Developmental programs coordinating size and niche variations in the primate eye and retina with Silveira, Dyer, Muniz, da Silva Filho
- Annual Meeting for Physical Anthropology 2014 "Directing new information and abilities into conserved brain architecture" American Journal of Physical Anthropology 153, 117-117

Invited symposium addresses and presentations:

- Society for Neuroscience satellite symposium, 1979. Comparative aspects of vision in rodents. "A neuroethological approach to hamster vision."
- First Meeting in Neural Development, Columbia University, 1983.
- Society for Neuroscience Symposium, 1984: Naturally-occurring neuronal death in vertebrates. "Cell death in the mammalian visual system"
- Australian Neuroscience Society, 1986: Developments in retinal topography "Developmental mechanisms for the evolution of species differences in retinal cell number and distribution" Also, summary discussant.
- International Symposium on Retinal Development and Regeneration, Banff, Alberta 1988 "Retinal stretch, elasticity and maturational gradients in the development of retinal topography."
- The Extraordinary Brain: Neurobiological Issues in Developmental Dyslexia. Barcelona, Spain, 1990. Regressive event in cortical neurogenesis.
- Grass Developmental Neurobiology Conference, Shoals Marine Lab 1993
- "Neurofest" Symposium speaker Upstate New York Chapter of the Society for Neuroscience Annual Symposium, 1994 "A Model for the Metamorphosis of Mice to Men: Developmental Structure in the Allometry of Brain Parts"
- Extrageniculate mechanisms underlying visually guided orientation behavior Niigata, Japan, 1995. Satellite symposium to IBRO convention. "What do developmental mapping rules optimize?"
- Development and function of the neocortex, Lyon, France 1995 "The sequence of neocortical innervation: specification events and trophic interactions"
- Workshop in Human Development, UCSD 1995 "Conservation of patterns of brain development in evolution: consequences for cognition"

- International Conference on Infant Studies, New Haven, 1996 "Human Brain Organization in the Context of Mammalian Development and Evolution: What's General and What's Special?"
- McDonnell-Pew Cognitive Neuroscience Retreat . San Diego, 1996, "Developmental structure in brain evolution"
- IPSEN Foundation, "Normal and abnormal development of the cortex" Paris, France.
- Karger Symposium, 1997 "Patterns of vertebrate neurogenesis and the paths of vertebrate evolution. J.B. Johnston Club, New Orleans 1997
- L.O.V.E. Conference, Niagara Falls, 1998 "The brain explained, three times over" Symposium in honor of H. Jerison, 1998, American Association of Physical Anthropologists, Salt Lake City "Encephalization and its developmental structure: how many ways can a brain get big?"
- European Research Conference, Brain development and cognition in human infants: development and functional specialization. San Felieu de Guixols, Spain, 1998
- 3rd Borsellino College on Neurophysics: Evolution of Intelligent Behavior.

 Developmental structure in vertebrate brain evolution. Trieste, Italy, 2001
- Harvard Medical School Symposium "Simple rules, complex systems" Cambridge, 2001 Annual Meeting of the Jean Piaget Society. Symposium. "Biology and Knowledge, Revisited" San Francisco, 2001
- International Summer School on Cognitive Sciences, "Development and evolution of the brain" Sofia, Bulgaria 2001
- Annual meeting of Neural Information Processing Systems, Symposium speaker, "Evolution of the brain; Consequences for cognition" Vancouver, 2001
- Collegium Budapest "Evolution of Cognition and the Brain" Budapest, Hungary, 2002 Symposium of Western Australia Neuroscience, "Developmental Structure in Brain Evolution" Perth, 2002
- University of Tubingen, "Structure, Function and Evolution of the Primate Visual System" 2003
- Cornell Symposium on Language Universals, 2004 Commentator on Hawkins John Merck Fund Summer institute at Princeton, 2004 "Development and Evolution of the Cortex"
- 21st International Symposium on Attention and Performance, 2004. "Processes of Change in Brain and Cognitive Development"
- Annual meeting of Federação de Sociedades de Biologia Experimental, Aguas de Lindia, 2004 "Developmental structure in brain evolution" and "Developmental programs robust to variations in scale and niche: examples in primate vision " and "Coordinating constraints: developmental, functional and computational control in evolving systems"
- Workshop in Developmental Neuroscience. Tutorial on brain development and evolution, Cordoba, Argentina 2005
- SBS Research Seminars, University of Auckland 2006 "Developmental structure in brain evolution: the proliferation and significance of cortical areas"

- Auckland Neuroscience Network Workshop, Leigh Marine Biological Lab 2006 "Developmental programs robust to scale and niche"
- European Conference on Visual Perception, St. Petersburg, Russia 2006 "Developmental programs coordinating size and niche variations in the primate eye and retina."
- XVII International Congress of Eye Research, Buenos Aires Argentina 2006 "The evolution and development of the primate eye: competing control regimes for nocturnal and diurnal adaptations?"
- 19th Symposium of the International Color Vision Society 2007 "Developmental programs coordinating size and niche variations in the primate retina" Belém, Brazil
- Adolescence Institute, 2007 "What can the adolescent's brain tell us about the adolescent mind?" Ithaca, NY
- Marie Curie Visiting Professor Programme, EU, Birkbeck College University of London, England 2008
- CIFASD Meeting (Fetal Alcohol Syndrome) 2008 NIH/NIAAA, Bethesda "Animal models and comparative brain development"
- Gordon Research Conference: Neuroethology: Behavior, Evolution and Neurobiology. Magdalen College, Oxford UK August 2008
- NIMH Conference "Improving Cross-Species Understanding of Developmental Research on Brain-Behavior Interaction" Bethesda, 2009
- Conference of the European Society for Evolutionary Developmental Biology (Paris, July 6-9, 2010). "Night and day, large and small: developmental structure supporting common visual system variations in mammalian evolution"
- International Symposium on Vision and Visual Dysfunction. Belem, Brazil 2010 "General and niche-specific factors in primate visual system evolution: An evo-devo approach"
- FENS-IBRO School Bertinoro, Italy, 2011 "Development and Plasticity of Cortical Representation" Development and Evolution of the Brain,
- Satellite to the VI International Congress of the Latin American Society of Developmental Biology (2012) Evo-devo, retina and brain
- Marie Curie Visiting Professor Programme, EU, Birkbeck College University of London, England 2012
- Evolution and Function of Consciousness, Montreal Turing Summer Consciousness School, Montreal, 2012 "Continuities and discontinuities in vertebrate brain evolution and cognitive capacities: implications for consciousness"
- Keynote Speaker Neurobiology of Language Conference, Society for the Neurobiology of Language, San Sebastian, Spain 2012
- Evolution of the Human Neocortex; How unique are we? Company of Biologists Workshop, Wiston House, Sussex UK September 2013 "Evolving the developing cortex: graceful scaling and functional channeling"
- NSF Workshop on Phylogenetic Principles of Brain Structure and Function: Brain Maps Across Phylogeny Janelia Farms Research Campus, 2013
- Winter Conference on Brain Research Evolvability of behavior: genes, development, and neural circuits, Steamboat Springs, Colorado 2014
- Wiley Symposium: Evolutionary Developmental Anthropology: an evo-devo approach to understanding primate and human evolution. Meeting of the American Association

- for Physical Anthropology, Calgary, Alberta, 2014 "Directing new information and abilities into conserved brain architecture"
- International Society for Neuroethology, Plenary Address, Sapporo Japan 2014 "Integrating brain diversity with conserved developmental mechanisms: the case of the isocortex"
- Evo Day, Cornell University, Ithaca NY 2015 Marching, stretching and shuffling: Stability and change in neurodevelopmental timing underlying brain and life history evolution in mammals.
- First Conference on Cortical Evolution, Toledo, Spain 2015
- The Barcelona Cognition, Brain and Technology Summer School 2015 Evolution's instructions for brain construction
- Ernst Strungmann Forum, Frankfurt Germany 2016 Contextualizing Attachment: The Cultural Nature of Attachment

Conferences organized:

- Cornell University, 1987 Development of the vertebrate retina Dale Sengelaub, coorganizer. "
- AAAS, San Francisco, 1989 The Acquistion and Dissolution of Language: Behavioral Evidence for a Biological Program Barbara Lust, co-organizer. "Multidimensional Maps and Modularity: Complex Computations and the Cortex"
- A. Mosso Institute, Col d'Olen, Italy. The Neocortex: Ontogeny and Phylogeny Giorgio Innocenti, co-organizer. NATO Advanced Research Workshop, August 1989.
- Cornell Cognitive Studies Symposium Series, 1995 Big Brains. Co-organized with David Field
- NATO Advanced Study Institute: Development and Organization of the Retina: From molecules to function. June, 1997, Agia Pelaghia, Crete. Co-organized with Leo Chalupa
- Cornell University, 2003 "Further developments" A Symposium in honor of Eleanor J. Gibson
- CU Ithaca-Weill October 2005, April 2006, October 2007 Developing a Developmental Cognitive Neuroscience Group
- John Merck Fund Summer Institute on the Biology of Developmental Disabilities. June, 2007-2010 with BJ Casey, Dima Amso
- Translating Time Collaborative Group, June 2011 Ithaca NY

Invited colloquia 1985-present

University Laboratory of Physiology, Oxford University, 1985

Department of Biology, California Institute of Technology, 1986

Department of Psychology, University of Western Australia, 1987

Neuromuscular Research Institute, Queen Elizabeth II Medical Centre, Nedlands, Western Australia, 1987

School of Anatomy, University of New South Wales, 1987

Department of Physiology, University of Pennsylvania Medical School, 1988

Department of Biology, SUNY Albany, 1988

Department of Anatomy, Yale University School of Medicine, 1988

Department of Psychology, Cornell University, 1988

Section of Neurobiology and Behavior, Cornell University, 1989

Medical College of Pennsylvania, 1989

Division of Neuroscience, University of California at San Diego, 1989

Department of Psychology, Bucknell University, 1990

Beckman Institute, Neuroscience, University of Illinois, 1991

Department of Physiology, SUNY Buffalo, 1992

Department of Biology, Wesleyan University, 1993

Department of Psychology, University of North Carolina at Greensboro, 1994

Neuroscience group, Tufts/New England Medical Center, 1994

Department of Psychology, Cornell University, 1994

Department of Neurobiology and Behavior, Cornell University, 1995

Neuroscience Program, Oberlin College, 1995

Boston University School of Medicine, 1995

Department of Anatomy, University of Lausanne, Switzerland 1995

"Cerveau et Vision" INSERM, Lyon, France, 1995

Departamento do Fisiologia, Universidade de Para, Belem, Brasil, 1996

Department of Biophysics, Federal University of Brazil, Rio de Janeiro, 1996

Department of Anatomy and Cell Biology, SUNY Health Science Center. 1996

Section of Neuroanatomy, Yale University, 1996

Department of Anatomy, UC Santa Barbara, 1996

Department of Neuroscience, UC Davis 1996

McDonnell-Pew Center for Cognitive Neuroscience, Salk Institute, San Diego, 1996

Departamento do Fisiologia, Universidade de Para, Belem, Brasil, 1997

Department of Cognitive Science, UC San Diego, 1998

Department of Brain and Cognitive Science, University of Rochester, 1998

Department of Psychology, SUNY Albany 1998

Department of Psychology, Rutgers University, 2000

Department of Psychology, Cornell University, 2001

Department of Anthropology, SUNY Stony Brook 2001

Department of Psychology, Vanderbilt University, 2002

Neurotrama Research Unit, University of Western Australia, 2002

Wissenschaftskolleg zu Berlin, 2002

Department of Human Development, UC San Diego 2003

Neuroscience Program, Georgia State University, 2003

Developmental Cognitive Neuroscience Unit, University College of London, 2004

Department of Psychology, Penn State University 2004

CNBC, Carnegie Mellon University, 2004

Progress in Neuroscience Series, Cornell-Weill Medical College 2004

Neuroscience Series, SUNY Upstate Medical University 2004

Department of Zoology, University of Florida, 2006

Center for Neural Science, New York University, 2006

Arkansas Chapter of the Society for Neuroscience, Little Rock, 2006

First Annual Toad Suck Brain Seminar, Central Arkansas State University, 2006 Evolutionary Studies Program, Binghamton University, 2008

IGERT Program in Ecology and Evolutionary Biology, Indiana University, 2008 SUNY College of Optometry 2009

Neuroscience group, City College of New York, 2009

Cognitive Sciences Seminar, Birkbeck, University College of London, 2010

Center for Behavioral and Cognitive Development, University College of London, 2010 University of Sussex, 2010

Department of Psychiatry, University of London, 2010

Marie Curie Cognitive Sciences Seminar, Birkbeck, University College of London, 2012 Cortex Club, University of Oxford 2012

Neurobiology Seminar Series, University of Texas at San Antonio, 2013

Affective Science Laboratory Northeastern University, 2014; Massachusetts General Hospital, 2014

Department of Psychology, Cornell University, 2014

NIH Neurosciences Seminar Series, 2015