

CURRICULUM VITAE

George R. McGhee Jr.

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ACADEMIC DEGREES:

B.S. Geology (honors), North Carolina State University, 1973. Minor in biological sciences.

M.S. Geology, University of North Carolina at Chapel Hill, 1975. Thesis advisor: John M. Dennison.

Ph.D. Geological Sciences, University of Rochester, 1978 (at age 26). Dissertation advisor: David M. Raup.

PROFESSIONAL POSITIONS:

Laboratory Assistant (micropaleontology). U. S. Geological Survey (Raleigh NC), 1972-1973.

Assistant Professor. Rutgers University, 1978-1983.

Associate Professor. Rutgers University, 1983 (tenured at age 31) - 1993.

Professor. Rutgers University, 1993-2006.

Professor II (age 54). Rutgers University, 2006-2013 [Note: Rutgers changed the title "Professor II" to "Distinguished Professor" in 2013.]

Distinguished Professor. Rutgers University, 2013-present. *Full member*, Earth & Planetary Sciences, Ecology & Evolution, and Oceanography graduate faculties.

HONORS AND AWARDS:

Member, National Beta Club. High School Honor Society, 1966-1969.

Delegate, Science and Humanities Symposium. High School science honor, sponsored by the North Carolina Academy of Science and U.N.C.-Chapel Hill, May 1969.

Dean's List. North Carolina State University, 3 years.

University Scholarship. North Carolina State University, 3 years.

Teaching Fellow. University of North Carolina, 1974-1975 (fellowship).

Fellow. University of Rochester, 1975-1978 (fellowship).

Scientific Assistant. University of Tübingen, Germany, May-August 1977 (fellowship).

Post-Doctoral Fellow (declined). Smithsonian Institution, 1978-1979. (Fellowship declined in order to take tenure-track position at Rutgers).

Junior Faculty Fellow. Rutgers University, Spring Semester 1981 (research leave at full salary).

Visiting Scientist. Field Museum of Natural History, Chicago, January-August 1981 (fellowship).

Guest Lecturer. University of Tübingen, Germany, May-August 1982 (fellowship).

Research Associate. American Museum of Natural History, New York, 1982-1985 (work space and staff privileges).

Guest Lecturer. University of Tübingen, Germany, August 1983 (fellowship).

Guest Professor. University of Tübingen, Germany, June-September 1984 (fellowship).

HONORS AND AWARDS (continued):

An "*Outstanding Academic Book for 1996*" was awarded to my book, *The Late Devonian Mass Extinction*, by *Choice*, the journal of scholarly publishing and university libraries (*Choice*, v. 34, January 1997).

Distinguished Lecturer (declined). The Paleontological Society, 2000-2002. (Declined due to onset of inner ear illness, Meniere's disease).

Guest Workshop Member. One of 10 invitees to the Santa Fe Institute, New Mexico, for an expenses-paid workshop on theoretical morphology, 16-21 November 2000 (sponsored by the Keck Foundation).

Guest Workshop Member. One of 12 invitees to the Vatican Observatory, Castel Gandolfo, Italy, for an expenses-paid workshop on evolutionary convergence, 24-27 June 2004 (sponsored by the Templeton Foundation).

Guest Workshop Member. One of 16 invitees to the Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria, for an expenses-paid workshop on modeling evolution, 8-12 July 2004 (sponsored by the KLI).

KLI Fellow. The Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria. June-August 2005 (fellowship).

Guest Workshop Member. One of 13 invitees to the Hendrik Antoon Lorentz Center of the University of Leiden, The Netherlands, for an expenses-paid workshop on the concept of symmetry, 11-14 March 2008 (sponsored by the Lorentz Center).

KLI Member. Elected a Member of the Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria, by the General Assembly of the KLI on 5 May 2008 (voting and policy privileges).

Guest Workshop Member. One of 13 foreign invitees to the Institute Cavanilles of the University of Valencia, Spain, for an expenses-paid workshop on evolutionary development (in honor of Pere Alberch), 21-24 May 2008 (sponsored by the University of Valencia).

Centennial Fellow. Elected a Centennial Fellow of the Paleontological Society on 6 October 2008. In 2008, the society had 1492 members, only 68 of whom were Fellows.

KLI Fellow. The Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria. June-August, 2010 (fellowship).

Guest Speaker (declined). Foreign invitee to The Natural History Museum, London, England, for an expenses-paid conference on the causes of mass extinction, 27-29 March 2013, sponsored by The Natural History Museum and the Mineralogical Society of Great Britain and Ireland. (Declined due to hospitalization for cardiac surgery).

Guest Workshop Member. One of 13 invitees to Oxford University, England, for an expenses-paid workshop on contingency and directionality in evolution, 11-14 August 2013 (sponsored by the Templeton Foundation and the University of Queensland).

Guest Workshop Member. One of 8 invitees to the Santa Fe Institute, New Mexico, for an expenses-paid workshop on the convergent evolution of agriculture in insects and humans, 27-30 August 2014 (sponsored by the Santa Fe Institute).

Guest Speaker. One of 18 foreign invitees to Cambridge University, England, for an expenses-

paid conference on limits in evolution, 24-27 September 2014 (sponsored by the Templeton Foundation and Cambridge University).

PROFESSIONAL OFFICES:

Member, Nominating Committee. The Paleontological Society (N.E. Section), 1981-1982.
Member, Moore Medal Selection Committee. SEPM (Soc. Sedimentary Geology), 1982-1984.
Member, Nominating Committee. The Paleontological Society (N.E. Section), 1984-1985.
Associate Editor, Paleobiology. 1982-1984, 1985-1987 (Two consecutive terms).
Sectional Vice-President. The Paleontological Society (N.E. Section), 1988-1989.
Sectional President. The Paleontological Society (N.E. Section), 1989-1990.
Associate Editor, Paleobiology. 1989-1990.
Adjunct Editor, Paleobiology. 1990-1992.
U.S. Chair, International Geological Correlation Program 216 ("Global Biological Events in Earth History"). 1984-1992.
Member, Continuing Education Committee. SEPM (Soc. Sedimentary Geology), 1991-1993.
Member, Paleontological Society Medal Selection Committee. The Paleontological Society, 2001-2003.

PROFESSIONAL SOCIETY MEMBERSHIPS:

The National Geographic Society	[1969-present]
The Paleontological Society (<i>Centennial Fellow</i>)	[1975-present]
American Association for the Advancement of Science	[1976-present]
<i>Die Paläontologische Gesellschaft</i>	[1977-present]
The International Palaeontological Association	[1978-present]
The Palaeontological Association (British)	[1979-present]
The Geological Society of America (<i>Fellow</i>)	[1979-present]
SEPM-Society for Sedimentary Geology	[1982-present]
Paleontological Research Institution	[1978-2014]
The Society of Systematic Zoology	[1979-1992]
The Society of Systematic Biology	[1992-1996]

RESEARCH GRANTS:

Various aspects of my work have been funded with research grants from (in reverse chronological order) the *Konrad Lorenz Institut für Evolutions- und Kognitionsforschung*, the U.S. National Science Foundation (NSF), the *Deutsche Forschungsgemeinschaft* (German Science Foundation), the Petroleum Research Fund (American Chemical Society), the Geological Society of America, and the West Virginia Geological and Economic Survey.

INVITED LECTURES GIVEN:

Yale University -- 1977
Universität Tübingen (Germany) -- 1977
Rutgers University -- 1978
The Smithsonian Institution -- 1979

Franklin and Marshall College -- 1979
 State University of New York, Stony Brook -- 1979
 The Johns Hopkins University -- 1980
 Harvard University -- 1981
 Field Museum of Natural History -- 1981
Universität Tübingen (Germany) -- 1982
 Virginia Polytechnic Institute and State University -- 1982
 McGill University, Montreal (Canada) -- 1982
 Rider College -- 1982
Universität Tübingen (Germany) -- 1983
Université Claude Bernard, Lyon (France) -- 1983
 Virginia Polytechnic Institute and State University -- 1983
Universität Tübingen (Germany) -- 1984
 Syracuse University -- 1984
 State University of New York, Binghamton -- 1985
 State University of New York, Stony Brook -- 1985
 University of North Carolina, Chapel Hill -- 1986
Universität Göttingen (Germany) -- 1986
Universidad del País Vasco, Bilbao (Spain) -- 1987
 Temple University -- 1987
 State University of New York, Stony Brook -- 1987
 University of Colorado, Boulder -- 1988
 Oxford University (England) -- 1990
 Field Museum of Natural History -- 1992
Universität Göttingen (Germany) -- 1992
[IMPORTANT NOTE: I became ill with Meniere's disease, an incurable inner-ear illness, in 1993. On advice of my physicians, I now no longer travel as frequently, and only accept lecture invitations at other universities in exceptional circumstances].
 University of Plymouth (England) -- 1994
 The Santa Fe Institute -- 2000
 The Vatican Observatory (Italy) -- 2004
 The Konrad Lorenz Institute for Evolution and Cognition Research (Austria) -- 2004
 The Konrad Lorenz Institute for Evolution and Cognition Research (Austria) -- 2005
 University of Leiden (The Netherlands) -- 2008
 University of Valencia (Spain) -- 2008
 Oxford University (England) -- 2009
 Oxford University (England) -- 2013
 The Santa Fe Institute -- 2014
 Cambridge University (England) -- 2014

PROFESSIONAL SYMPOSIA CO-ORGANIZED AND CO-CHAired:

1981 ■ "The Adaptive Potential of Bivalved Shells: Comparative Assessments of Brachiopods, Molluscs, and Ostracodes".
 Co-chair: R.D.K. Thomas, Franklin and Marshall College.

- Sponsor: The Paleontological Society (NE Section).
Bangor, Maine, 9-11 April.
- 1984 ■ "The Upper Devonian (Frasnian-Famennian) Biotic Crisis".
Co-chair: James Sorauf, SUNY-Binghamton.
- Sponsor: The Paleontological Society (NE Section).
Providence, Rhode Island, 15-17 March.
- 1986 ■ "Environmental Controls on Faunal Radiations and Mass Extinctions".
Co-chair: Cathryn R. Newton, Syracuse University.
- Sponsor: Society of Economic Paleontologists and Mineralogists.
Raleigh, North Carolina, 26-28 September.
- 1989 ■ "Global Biological Events in Earth History".
Co-chair: Otto H. Walliser, Universität Göttingen, FRG.
- Sponsor: International Geological Correlation Program.
Washington, D.C., 9-19 July.
- 1990 ■ "Global Biological Events in Earth History".
Co-chair: Peter M. Sheehan, Milwaukee Public Museum.
- Sponsors: The Paleontological Society (NE Section) and the International Geological
Correlation Program.
Syracuse, New York, 4-7 March.

INVITED SYMPOSIUM PARTICIPANT:

- 1980 ■ "*Bau, Funktion und Evolution von Organismen Skelleten*".
Sponsor: *Die Paläontologische Gesellschaft*.
Tübingen, F.R. Germany, 6-11 October.
- 1980 ■ "Conference on Macroevolution".
Sponsor: Field Museum of Natural History.
Chicago, Illinois, 16-19 October.
- 1982 ■ "Adaptive Strategies of Shallow Water Faunas".
Sponsor: The Paleontological Society (SE Section).
Washington, D.C., 25-27 March.
- 1982 ■ "Evolution of Communities in Geologic Time".
Sponsor: The Paleontological Society (NC Section).
West Lafayette, Indiana, 29-30 April.
- 1982 ■ "Problematic Fossils".
Sponsor: North American Paleontological Convention III.
Montreal, Quebec, Canada, 5-7 August.
- 1983 ■ "The Late Devonian Catskill Delta".
Sponsor: The Paleontological Society (NE Section).
Kiamesha Lake, New York, 23-25 March.
- 1983 ■ "*Premier Congrès International de Paléoécologie*".
Sponsor: International Palaeontological Association.
Lyon, France, 18-23 July.
- 1983 ■ "Paleoecologic and Evolutionary Trends in Marginal Basins".

- Sponsor: *Deutsche Forschungsgemeinschaft.*
Tübingen, F.R. Germany, 15-17 September.
- 1986 ■ "ALFRED-WEGENER Conference (1st International Conference of IGCP Project 216: Global biological events in earth history)".
- Sponsor: International Geological Correlation Program Project 216.
Göttingen, F.R. Germany, 12-24 May.
- 1987 ■ "Second International Symposium on the Devonian System".
- Sponsor: Canadian Society of Petroleum Geologists and the International Subcommittee on Devonian Stratigraphy.
Calgary, Alberta, Canada, 17-20 August.
- 1987 ■ "International Conference on Paleontology and Evolution: Extinction Events".
- Sponsor: *Sociedad Española de Paleontología* and IGCP Project 216.
Bilbao, Spain, 20-23 October.
- 1988 ■ "Abrupt Changes in the Global Biota".
- Sponsor: International Palaeontological Association and IGCP Project 216.
Boulder, Colorado, 16-23 May.
- 1989 ■ "Paleontological Event Horizons: their Stratigraphic, Ecological, and Evolutionary Implications".
- Sponsor: The Paleontological Society (NE Section).
New Brunswick, New Jersey, 23-26 March.
- 1989 ■ "Extinctions in the Geologic Record (28th IGC Workshop)".
- Sponsors: Steven M. Stanley, Johns Hopkins University, and Anthony Hallam, University of Birmingham, U.K.
Washington, D.C., 15-16 July.
- 1989 ■ "Radiation and Recovery from Mass Extinctions".
- Sponsor: The Paleontological Society (US National).
St. Louis, Missouri, 6-9 November.
- 1990 ■ "Innovations and Revolutions in the Biosphere".
- Sponsor: International Geological Correlation Program Project 216.
Oxford, England, 25-29 September.
- 1991 ■ "Event Markers in Earth History".
- Sponsor: International Geological Correlation Program Project 216 and the Canadian Geological Survey.
Calgary, Alberta, Canada, 28-30 August.
- 1991 ■ "Analytical Paleobiology".
- Sponsor: The Paleontological Society (US National).
San Diego, California, 20-24 October.
- 1992 ■ "Phanerozoic Bio-Events and Event Stratigraphy".
- Sponsor: International Geological Correlation Program Project 216.
Göttingen, Germany, 16-19 February.
- 1992 ■ "Implications of Sequence Stratigraphy for Evolutionary and Biostratigraphic Patterns".
- Sponsor: 5th North American Paleontological Convention.
Chicago, Illinois, 29 June - 1 July.

- 1994 ■ "Biotic Recoveries from Mass Extinction".
 Sponsor: International Geological Correlation Program Project 335.
 Plymouth, England, 4-12 September.
- 2000 ■ "Computational Approaches in Theoretical Morphology".
 Sponsor: The Santa Fe Institute and the Keck Foundation.
 Santa Fe, New Mexico, 16-21 November.
- 2002 ■ "Evolutionary Morphology".
 Sponsor: The Paleontological Society (NC Section).
 Lexington, Kentucky, 3-5 April.
- 2002 ■ "Seafood through Time -- The Ecologic Context of the History of Life: In
 Honor of Richard K. Bambach".
 Sponsor: The Paleontological Society (US National).
 Denver, Colorado, 26-30 October.
- 2003 ■ "Understanding Late Devonian Biotic, Climatic, and Oceanographic Events:
 Towards an Integrated Approach".
 Sponsor: The Paleontological Society (US National).
 Seattle, Washington, 2-5 November.
- 2004 ■ "Purpose in Evolution: Is Convergence Sufficiently Ubiquitous to Give a
 Directional Sign?"
 Sponsor: The Vatican Observatory and the John Templeton Foundation.
 Castel Gandolfo, Italy, 24-27 June.
- 2004 ■ "Modeling Biology: Structures, Behaviors, Evolution" (10th Altenberg
 Workshop in Theoretical Biology).
 Sponsor: The Konrad Lorenz Institute for Evolution and Cognition Research.
 Altenberg, Austria, 8-12 July 2004.
- 2007 ■ "Whole-Organism Paleocology and the Relationship of Form, Function, and
 Ecological Interactions: In Memory of Richard Alexander."
 Sponsor: The Paleontological Society (US National)
 Denver, Colorado, 28-31 October.
- 2008 ■ "Symmetry as a Modern Scientific Concept."
 Sponsor: University of Leiden
 Leiden, The Netherlands, 11-14 March.
- 2008 ■ "Memorial Pere Alberch: The Cradle of Evo-Devo."
 Sponsor: University of Valencia
 Valencia, Spain, 21-24 May.
- 2009 ■ "Religion and Science after Darwin" (150th year after the publication of *On the
 Origin of Species*).
 Sponsor: Oxford University
 Oxford, England, 26-31 July.
- 2013 ■ "Contingency and Order in History and the Sciences."
 Sponsor: Templeton Foundation and the University of Queensland.
 Oxford, England, 11-14 August.
- 2014 ■ "Convergent Evolution of Agriculture in Insects and Humans."
 Sponsor: The Santa Fe Institute

2014 Santa Fe, New Mexico, 27-30 August.
■ "Are there Limits to Evolution?"
Sponsor: Templeton Foundation and Cambridge University.
Cambridge, England, 24-27 September.

SCHOLARLY PUBLICATIONS

I. BOOKS, research:

- McGhee, G.R., Jr. 1996. *The Late Devonian Mass Extinction: The Frasnian/Famennian Crisis*. Columbia University Press, New York. 303 pp.
- McGhee, G.R., Jr. 1999. *Theoretical Morphology: The Concept and Its Applications*. Columbia University Press, New York. 316 pp.
- McGhee, G. R., Jr. 2007. *The Geometry of Evolution: Adaptive Landscapes and Theoretical Morphospaces*. Cambridge University Press, Cambridge (England). 212 pp.
- McGhee, G. R., Jr. 2011. *Convergent Evolution: Limited Forms Most Beautiful*. Vienna Series in Theoretical Biology; Massachusetts Institute of Technology Press, Cambridge (MA). 322 pp.
- McGhee, G. R., Jr. 2013. *When the Invasion of Land Failed: The Legacy of the Devonian Extinctions*. Columbia University Press, New York. 317 pp.

II. BOOKS, popular science:

- Stevenson, J. and McGhee, G.R., Jr. 1998. *The Complete Idiot's Guide to Dinosaurs*. Macmillan General Reference, New York. 326 pp.
- McGhee, G. R., Jr. 2003. *Lecture Topics in Dinosaurs*. University Publishing Solutions, LLC, East Brunswick (NJ). 113 pp.
- McGhee, G. R., Jr. 2007. *Lecture Topics in Dinosaurs, 2nd Edition*. University Publishing Solutions, LLC, East Brunswick (NJ). 119 pp.

III. REFEREED RESEARCH ARTICLES:

- McGhee, G.R., Jr. 1976. Late Devonian benthic marine communities of the Central Appalachian Allegheny Front. *Lethaia* 9: 111-136.
- McGhee, G.R., Jr. and Dennison, J.M. 1976. The Red Lick Member, a new subdivision of the Foreknobs Formation (Upper Devonian) in Virginia, West Virginia, and Maryland. *Southeastern Geology* 18: 49-57.
- McGhee, G.R., Jr. 1977. The Frasnian-Famennian (Late Devonian) Boundary within the Foreknobs Formation, Maryland and West Virginia. *Geological Society of America Bulletin* 88: 806-808.
- McGhee, G.R., Jr. 1978. Analysis of the shell torsion phenomenon in the Bivalvia (Konstruktionsmorphologie Nr. 91). *Lethaia* 11: 315-329.
- McGhee, G.R., Jr. 1980a. Shell form in the biconvex articulate Brachiopoda: a geometric analysis. *Paleobiology* 6: 57-76.
- McGhee, G.R., Jr. 1980b. Shell geometry and stability strategies in the biconvex Brachiopoda. *Neues Jahrbuch für Geologie und Paläontologie Monatsheft* 1980(3): 155-184.

- McGhee, G.R., Jr. and Dennison, J.M. 1980. Late Devonian chronostratigraphic correlations between the central Appalachian Allegheny Front and central and western New York. *Southeastern Geology* 21: 279-286.
- McGhee, G.R., Jr. and Sutton, R.G. 1981. Late Devonian marine ecology and zoogeography of the central Appalachians and New York. *Lethaia* 14: 27-43.
- McGhee, G.R., Jr. 1981. Evolutionary replacement of ecological equivalents in Late Devonian benthic marine communities. *Palaeogeography, Palaeoclimatology, Palaeoecology* 34: 267-283.
- McGhee, G.R., Jr. and Richardson, E.S., Jr. 1982. First occurrence of the problematical fossil *Vetacapsula* in North America. *Journal of Paleontology* 56: 1295-1296.
- McGhee, G.R., Jr. 1982a. The Frasnian-Famennian extinction event: a preliminary analysis of Appalachian marine ecosystems. In: Silver, L.T. and Schultz, P.H. (Eds.), *Geological Implications of Impacts of Large Asteroids and Comets on the Earth*. *Geological Society of America Special Paper* 190: 491-500.
- McGhee, G.R., Jr. 1982b. The problematica *Palaeoxyris*, *Vetacapsula*, and *Fayolia*: a morphological comparison with recent chondrichthyan egg cases. *Third North American Paleontological Convention, Proceedings* vol. 2: 365-369.
- McGhee, G.R., Jr. and Sutton, R.G. 1983. Evolution of late Frasnian (Late Devonian) marine environments in New York and the central Appalachians. *Alcheringa* 7: 9-21.
- Bayer, U. and McGhee, G.R., Jr. 1984. Iterative evolution of Middle Jurassic ammonite faunas (Fossil-Lagerstätten Nr. 58). *Lethaia* 17: 1-16.
- McGhee, G.R., Jr., Gilmore, J.S., Orth, C.J., and Olsen, E.J. 1984. No geochemical evidence for an asteroidal impact at Late Devonian mass extinction horizon. *Nature* 308: 629-631.
- Sutton, R.G. and McGhee, G.R., Jr. 1985. The evolution of Frasnian marine "community-types" of south-central New York. In: Woodrow, D.L. and Sevon, W.D. (Eds.), *The Catskill Delta*. *Geological Society of America Special Paper* 201: 211-224.
- McGhee, G.R., Jr. and Sutton, R.G. 1985. Late Devonian marine ecosystems of the lower West Falls Group in New York. In: Woodrow, D.L. and Sevon, W.D. (Eds.), *The Catskill Delta*. *Geological Society of America Special Paper* 201: 199-209.
- Bayer, U. and McGhee, G.R., Jr. 1985a. Evolution in marginal epicontinental basins: the role of phylogenetic and ecological factors. In: Bayer, U. and Seilacher, A. (Eds.), *Sedimentary and Evolutionary Cycles*, pp. 164-220. Springer-Verlag, Heidelberg.
- Bayer, U. and McGhee, G.R., Jr. 1985b. Evolution of Middle Jurassic ammonites - a reply. *Lethaia* 18: 38.
- McGhee, G.R., Jr. and Bayer, U. 1985. The local signature of sea-level changes. In: Bayer, U. and Seilacher, A. (Eds.), *Sedimentary and Evolutionary Cycles*, pp. 98-112. Springer-Verlag, Heidelberg.
- Bayer, U. and McGhee, G.R., Jr. 1986. Cyclic patterns in the Paleozoic and Mesozoic: implications for time scale calibrations. *Paleoceanography* 1: 383-402.
- McGhee, G.R., Jr., Orth, C.J., Quintana, L.R., Gilmore, J.S., and Olsen, E.J. 1986a. Late Devonian "Kellwasser Event" mass-extinction horizon in Germany: no geochemical evidence for a large-body impact. *Geology* 14: 776-779.
- McGhee, G.R., Jr., Orth, C.J., Quintana, L.R., Gilmore, J.S., and Olsen, E.J. 1986b. Geochemical analyses of the Late Devonian "Kellwasser Event" stratigraphic horizon at Steinbruch

- Schmidt (F.R.G.). In: Walliser, O.H. (Ed.), *Global Bio-Events*, pp. 219-224. Springer-Verlag, Heidelberg.
- McGhee, G.R., Jr. 1988a. The Late Devonian extinction event: evidence for abrupt ecosystem collapse. *Paleobiology* 14: 250-257.
- McGhee, G.R., Jr. 1988b. Evolutionary dynamics of the Frasnian-Famennian extinction event. In: McMillan, N.J., Embry, A.F., and Glass, D.J. (Eds.), *Devonian of the World. Canadian Society of Petroleum Geology Memoir* 14: vol. 3, pp. 23-28.
- Bayer, U. and McGhee, G.R., Jr. 1989. Periodicity of Devonian sedimentary and biological perturbations: implications for the Devonian timescale. *Neues Jahrbuch für Geologie und Paläontologie Monatsheft* 1989(1): 1-16.
- McGhee, G.R., Jr. 1989. The Frasnian-Famennian extinction event. In: Donovan, S.K. (Ed.), *Mass Extinctions: Processes and Evidence*, pp. 133-151. Columbia University Press, New York.
- McGhee, G.R., Jr. 1990. The Frasnian-Famennian mass extinction record in the eastern United States. In: Kauffman, E.G. and Walliser, O.H. (Eds.), *Extinction Events in Earth History*, pp. 161-168. Springer-Verlag, Berlin.
- Warne, A.G. and McGhee, G.R., Jr. 1991. Stratigraphic subdivisions of the Upper Devonian, Scherr, Foreknobs, and Lockhaven Formations near the Allegheny Front of central Pennsylvania. *Northeastern Geology* 13: 96-109.
- McGhee, G.R., Jr., Bayer, U. and Seilacher, A. 1991. Biological and evolutionary responses to transgressive-regressive cycles. In: Einsele, G., Ricken, W. and Seilacher, A. (Eds.), *Cycles and Events in Stratigraphy*, pp. 696-708. Springer-Verlag, Berlin.
- McGhee, G.R., Jr. 1991. Extinction and diversification in the Devonian Brachiopoda of New York State: no correlation with sea level? *Historical Biology* 5: 215-227.
- McGhee, G.R., Jr. 1992. Evolutionary biology of the Devonian Brachiopoda of New York State: no correlation with rate of change of sea level? *Lethaia* 25: 165-172.
- McGhee, G.R., Jr. 1995. Geometry of evolution in the biconvex Brachiopoda: morphological effects of mass extinction. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* 197: 357-382.
- McGhee, G.R., Jr. 1997. Late Devonian bioevents in the Appalachian Sea: immigration, extinction, and species replacements. In: Brett, C.E. and Baird, G.C. (Eds.), *Paleontological Events: Stratigraphic, Ecological, and Evolutionary Implications*, pp. 493-508. Columbia University Press, New York.
- McGhee, G.R., Jr. 1999a. The optimum biconvex brachiopod in the theoretical spectrum of shell form. In: Savazzi, E. (Ed.), *Functional Morphology of the Invertebrate Skeleton*, 415-420. John Wiley & Sons Ltd., Chichester.
- McGhee, G.R., Jr. 1999b. Stability strategies and ordinal shell form variations in brachiopods: a theoretical perspective. In: Savazzi, E. (Ed.), *Functional Morphology of the Invertebrate Skeleton*, 421-428. John Wiley & Sons Ltd., Chichester.
- McGhee, G.R., Jr. 1999c. Morphological consequences of mass extinction in brachiopods: a theoretical perspective. In: Savazzi, E. (Ed.), *Functional Morphology of the Invertebrate Skeleton*, 435-440. John Wiley & Sons Ltd., Chichester.
- McGhee, G.R., Jr. 1999d. The theoretical enigma of non-biconvex brachiopod shell form. In: Savazzi, E. (Ed.), *Functional Morphology of the Invertebrate Skeleton*, 429-433. John

- Wiley & Sons Ltd., Chichester.
- Starcher, R. W. and McGhee, G. R., Jr. 2000. Fenestrate theoretical morphology: geometric constraints on lophophore shape and arrangement in extinct Bryozoa. *Paleobiology* 26: 116-136.
- Droser, M. L., Bottjer, D. J., Sheehan, P. M., and McGhee, G. R., Jr. 2000. Decoupling of taxonomic and ecologic severity of Phanerozoic marine mass extinctions. *Geology* 28: 675-678.
- McGhee, G. R., Jr. and McKinney, F. K. 2000. A theoretical morphologic analysis of convergently evolved erect helical colony form in the Bryozoa. *Paleobiology* 26: 556-577.
- Bottjer, D. J., Droser, M. L., Sheehan, P. M., and McGhee, G. R., Jr. 2001. The ecological architecture of major events in the Phanerozoic history of marine invertebrate life. In: Allmon, W. D. and Bottjer, D. J. (Eds), *Evolutionary Paleoeology*, pp. 35-61. Columbia University Press, New York.
- McGhee, G. R., Jr. 2001a. The question of spiral axes and brachiopod shell growth: a comparison of morphometric techniques. *Paleobiology* 27: 716-723.
- McGhee, G. R., Jr. 2001b. The "multiple impacts hypothesis" for mass extinction: a comparison of the Late Devonian and the late Eocene. *Palaeogeography, Palaeoclimatology, Palaeoecology* 176: 47-58.
- Starcher, R. W. and McGhee, G. R., Jr. 2002. Theoretical morphology of modular organisms: geometric constraints of branch and dissepiment width and spacing in fenestrate bryozoans. *Neues Jahrbuch für Geologie und Paläontologie, Abhandlungen* 223: 79-122.
- McGhee, G. R., Jr. and McKinney, F. K. 2002. A theoretical morphologic analysis of ecomorphologic variation in *Archimedes* helical colony form. *Palaios* 17: 556-570.
- Starcher, R. W. and McGhee, G. R., Jr. 2003. Fenestrate graptolite theoretical morphology: geometric constraints on lophophore shape and arrangement in extinct hemichordates. *Journal of Paleontology* 77: 360-367.
- McKinney, F. K. and McGhee, G. R., Jr. 2003. Evolution of erect helical colony form in the Bryozoa: phylogenetic, functional, and ecological factors. *Biological Journal of the Linnean Society* 80: 235-260.
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