CURRICULUM VITAE

Name:

Donald C. Jackson, Professor Emeritus and Adjunct Professor, Department of Molecular Pharmacology, Physiology, and Biotechnology

Education

Undergraduate: Geneva College, B.S. in Biology, 1959
Graduate: Univ. of Pennsylvania., Ph.D. in Physiology, 1963

Graduate and Post-graduate Appointments

Research Assistant, John B. Pierce Lab., New Haven, CT, 6/61 - 8/63
Research Associate, Zoology, Duke Univ. Durham, NC, 9/63 - 8/65

Academic Appointments

Associate in Physiology, Univ. of Pennsylvania, 9/65 - 6/68
Ass't Professor of Physiology, Univ. of Pennsylvania, 7/68 - 6/73
Assoc. Professor of Medical Science, Brown University, 6/73 - 6/80
Professor of Medical Science, Brown University, 6/80 – 6/07
Visiting Scientist, Max-Planck-Institute, Gottingen, 1/81 - 6/81
Visiting Scientist, CNRS, Strasbourg, 9/87 - 8/88
Program Officer (Visiting Scientist), National Science Foundation, Washington, DC, 9/91- 8/92
Hon. Visiting Professor, The Univ. of New South Wales, Sydney, 1/97 - 7/97
Visiting Scientist, UNESP, Rio Claro, Brazil, 9/02 – 12/02
Professor Emeritus, Brown University, 7/07-present
Adjunct Professor, Brown University, 7/07-present
Adjunct Professor, University of New Orleans, 1/14 - present.

Completed publications

a. Chapters in books

1. Jackson, D.C. (l978). Respiratory control in air-breathing ectotherms. In: *Regulation of Ventilation and Gas Exchange*, D.G. Davies and C.D. Barnes, eds., Academic Press, New York, pp. 93-130.

2. Jackson, D.C. (1979). Respiration. In: *Turtles: Perspectives and Research*, M. Harless and H. Morlock, eds., John Wiley & Sons, pp. 165-191.

3. Jackson, D.C. (1982). Strategies of blood acid-base control in ectothermic vertebrates. In: *A Companion to Animal Physiology*, C.R. Taylor, K. Johansen, and L. Bolis, eds. Cambridge Univ. Press, Cambridge, pp. 73-90.

4. Jackson, D.C. (1986). Acid-base regulation of reptiles. In: *Acid-Base Regulation of Animals*. N. Heisler, ed. Elsevier, Amsterdam, pp. 235-263.

5. Jackson, D.C. (1987). How do amphibians breathe both water and air? In: *Comparative Physiology: Life in Water and on Land*. P. Dejours, L. Bolis, C.R. Taylor, and E.R. Weibel, eds., Fidia Research Series, IX-Liviana Press, Padova, pp. 49-58.

6. Jackson, D.C. (1987). Assigning Priorities among interacting physiological systems. In: *New Directions in Ecological Physiology*. M.E. Feder, A.F. Bennett, W.W. Burggren, and R.B. Huey, eds., Cambridge Univ. Press, Cambridge, pp. 310-326.

7. Jackson, D.C. (1988). Tolerable limits of Hypoxia: the turtle as extreme example. In: *Hypoxia: The Tolerable Limits*, J. R. Sutton, C.S. Houston, and G. Coates, eds., Benchmark Press, Indianapolis, pp. 337-349.

8. Jackson, D.C. (1989). Control of breathing: effects of temperature. In: *Comparative Pulmonary Physiology: Current Concepts*, S.C. Wood, ed., Marcel Dekker, Inc., New York, pp. 621-641.

9. Jackson, D.C. (1990). Ion regulation in exercise: lessons from comparative physiology. In: *Biochemistry of Exercise*, A.W. Taylor, ed., Human Kinetics Pub., Champaigne, pp. 124-142.

10. Shoemaker, V.H., S.S. Hillman, S.D. Hilliard, D.C. Jackson, L.L. McClanahan, P.C. Withers, and M.L. Wygoda (1992). Exchange of water, ions, and respiratory gases in terrestrial amphibians. In: *Environmental Physiology of the Amphibians*, M.E. Feder and W.W. Burggren, eds., The Univ. of Chicago Press, Chicago, pp. 125-150.

11. Jackson, D.C. (1993). Anaerobic metabolism in reptiles, in: *The Vertebrate Gas Transport Cascade: Adaptations to Environment and Mode of Life*, J.E. Bicudo and M. Glass, eds., CRC Press, Boca Raton, pp. 314-322.

12. Jackson, D.C. (1993). Central chemoreceptors in reptiles. in: *Respiration in Health and Disease: Lessons from Comparative Physiology*, P. Scheid, ed., Gustav Fischer, Stuttgart, pp. 279-285.

13. Jackson, D.C. (1993). Glycolysis-dominated pH_i effects: the turtle heart. In: *Hypoxia and Molecular Medicine*, J.S. Sutton, C.S. Houston, and G. Coates, eds. Proceedings of the 8th Int'l Hypoxia Symposium, pp. 119-126.

14. Jackson, D.C. (1999). The role of the turtle shell in acid-base buffering. In: *Regulation of Tissue pH in Animals and Plants*, E.W. Taylor, S. Egginton, and J.A. Raven, eds., Cambridge Univ. Press, Cambridge, pp. 215-231.

15. Jackson, D.C. (2001). Anoxic survival and metabolic arrest in the turtle. Chap. 6 in: *Life in Limbo: Molecular Mechanisms of Metabolic Arrest*, K. Storey, ed., BIOS Scientific Publishers Ltd., Oxford. Pp. 103-114.

16. Jackson, D.C. (2004). Overwintering in submerged turtles. In: *Life in the Cold: Evolution, Mechanisms, Adaptation, and Application. Twelfth International Hibernation Symposium*. Barnes, B.M. and Carey, H.V., eds., Biological Papers of the University of Alaska, number 27, Fairbanks, AK, pp. 317-327.

b. Refereed journal articles

1. Jackson, D.C. and H.T. Hammel (1963). Hypothalamic "set" temperature decreased in exercising dog. *Life Sciences* 8: 554-563.

2. Hammel, H.T., D.C. Jackson, J.A.J. Stolwijk, J.D. Hardy, and S.B. Stromme (1963). Temperature regulation by hypothalamic proportional control with an adjustable set point. *J. Appl. Physiol*. 18: 1146-ll65.

3. Jackson, D.C. and K. Schmidt-Nielsen (l964). Countercurrent heat exchange in the respiratory passages. *Proc. Natl. Acad. Sci*. 5l: 1192-1197

4. Schmidt-Nielsen, K., T.J. Dawson, H.T. Hammel, D. Hinds, and D.C. Jackson (1965). The jack-rabbit - a study in its desert survival. *Hvalrad. Skr*. 48: l26-142.

5. Jackson, D.C. and K. Schmidt-Nielsen (1966). Heat production and diving in the fresh water turtle. *J. Cell. Physiol*. 67: 225-232.

6. Eisenman, J.D. and D.C. Jackson (1967). Thermal response patterns of septal and preoptic neurons in cats. *Exp. Neurol*. 19: 33-45.

7. Jackson, D.C. (1968). Metabolic depression and oxygen depletion in the diving turtle. *J. Appl. Physiol*. 24: 503-509.

8. Jackson, D.C. (1969). The response of the body fluids of the turtle to imposed acid-base disturbance. *Comp. Biochem. Physiol*. 29: 1105-1110.

9. Jackson, D.C. (1969). Buoyancy control in the freshwater turtle, (Pseudemys scripta elegans). *Science* 166: 1649-1651.

10. Jackson, D.C. (1971). Mechanical basis for lung variability in the turtle. *Am. J. Physiol*. 220: 754-758.

11. Jackson, D.C. (1971). The effect of temperature on ventilation in the turtle, *Pseudemys scripta elegans*. *Respir. Physiol*. 12: 131-140.

12. Giordano, R.V. and D.C. Jackson (1973). The effect of temperature on ventilation in the green iguana, *Iguana iguana*. *Comp. Biochem Physiol*. 45A; 235-238.

13. Jackson, D.C. (1973). Ventilatory response to hypoxia in turtles at various temperatures. *Respir. Physiol.* 18: 178-187.

14. Jackson, D.C. and H. Silverblatt (1974). Respiration and acid-base status of turtles following experimental dives. *Am. J. Physiol*. 226: 903-909.

15. Jackson, D.C., S.E. Palmer, and W.L. Meadow (1974). The effects of temperature and carbon dioxide breathing on ventilation and acid-base status of turtles. *Respir. Physiol*. 20: 131-146.

16. Gottlieb, G. and D.C. Jackson (1976). The importance of pulmonary ventilation in respiratory control in the bullfrog. *Am. J. Physiol*. 230: 608-613.

17. Jackson, D.C. and R.D. Kagen (1976). Effects of temperature transients on gas exchange and acid-base status of turtles. *Am. J. Physiol*. 230: 1389-1393.

18. Jackson, D.C. (1976). Non-pulmonary CO_2 loss during diving in the turtle, *Pseudemys scripta elegans*. *Comp. Biochem. Physiol*. 55A: 237-241.

19. Jackson, D.C., J. Allen, and P.K. Strupp (1976). The contribution of non-pulmonary surfaces to CO_2 loss in 6 species of turtles at 20^{o}C. *Comp. Biochem. Physiol*. 55A: 243-246.

20. Prange, H.D. and D.C. Jackson (1976). Ventilation, gas exchange and metabolic scaling of a sea turtle. *Respir. Physiol*. 27: 369-377.

21. Mackenzie, J.A. and D.C. Jackson (1978). The effect of temperature on cutaneous CO_2 loss and conductance in the bullfrog. *Respir. Physiol*. 32: 3l3-323.

22. Jackson, D.C. (1978). Respiratory and CO_2 conductance: the effects in a turtle and a frog. *Respir. Physiol*. 33:l03-114.

23. Hitzig, B.M. and D.C. Jackson (1978). Central chemical control of ventilation in the unanesthetized turtle. *Am. J. Physiol.* 235: R257-R264.

24. Jackson, D.C. and B.A. Braun (1979). Respiratory control in bullfrogs: cutaneous versus pulmonary response to selective CO_2 exposure. *J. Comp. Physiol*. l29: 339-342.

25. Meyers, R.S., R. Moalli, D.C. Jackson, and R.W. Millard (1979). Microsphere studies of bullfrog central vascular shunts during living and breathing in air. *J. Exp. Zool*. 208: 423-430.

26. Jackson, D.C., D.R. Kraus, and H.D. Prange (1979). Ventilatory response to inspired CO_2 in the sea turtle: effects of body size and temperature. *Respir. Physiol*. 38: 71-81.

27. Jackson, D.C. and H.D. Prange (1979). Ventilation and gas exchange during rest and exercise in adult green sea turtles. *J. Comp. Physiol*. 134: 315-319.

28. Kraus, D.R. and Jackson, D.C. (1980). Temperature effects on ventilation and acid-base balance of the green turtle. *Am. J. Physiol.* 239: R254-R258.

29. Moalli, R., R.S. Meyers, D.C. Jackson, and R.W. Millard (1980). Skin circulation of the frog, *Rana catesbeiana*: distribution and dynamics. *Respir. Physiol*. 40: 137-148.

30. Moalli, R., R.S. Meyers, G.R. Ultsch, and D.C. Jackson (1981). Acid- base balance and temperature in a predominantly skin-breathing salamander, *Cryptobranchus alleganiensis*. *Respir. Physiol*. 43: 1-11.

31. Ultsch, G.R., D.C. Jackson, and R. Moalli (1981). Metabolic oxygen conformity among lower vertebrates: the toadfish revisited. *J. Comp. Physiol*. 142: 439-443.

32. Ultsch, G.R. and D.C. Jackson (1982). Long-term submergence at 3^{o}C of the turtle, *Chrysemys picta bellii*, in normoxic and severely hypoxic water. I. survival, gas exchange and acid-base status. *J. Exp. Biol*. 96: ll-28.

33. Jackson, D.C. and G.R. Ultsch (1982). Long-term submergence at 3^{o}C of the turtle, *Chrysemys picta bellii*, in normoxic and severely hypoxic water. II. extracellular ionic responses to extreme lactic acidosis. *J. Exp. Biol*. 96: 29-43.

34. Ultsch, G.R. and D.C. Jackson (1982). Long-term submergence at 3°C of the turtle, *Chrysemys picta bellii*, in normoxic and severely hypoxic water. III. Effects of changes in ambient PO_2 and subsequent air breathing. *J. Exp. Biol*. 97: 87-99.

35. Jackson, D.C. and N. Heisler (1982). Plasma ion balance of submerged anoxic turtles at 3°C: the role of calcium lactate formation. *Respir. Physiol*. 49: 159-174.

36. Jackson, D.C. and N. Heisler (1983). Intracellular and extracellular acid-base and electrolyte status of submerged anoxic turtles at 3°C. *Respir. Physiol*. 53: 187-201.

37. Jackson, D.C. and N. Heisler (1984). The contribution of the alkaline pericardial fluid of freshwater turtles to acid buffering during prolonged anoxia. *J. Exp. Biol.* 109: 55-62.

38. Yee, H.F., Jr. and D.C. Jackson (1984). The effects of different types of acidosis and extracellular calcium on the mechanical activity of turtle atria. *J. Comp. Physiol*. B. 154: 385-391.

39. Ultsch, G.R., C.V. Herbert, and D.C. Jackson (1984). The comparative physiology of diving in North American freshwater turtles. I. Submergence tolerance, gas exchange, and acid-base balance. *Physiol. Zool*. 57: 620-631.

40. Jackson, D.C., C.V. Herbert, and G.R. Ultsch (1984). The comparative physiology of diving in North American freshwater turtles. II. Plasma ion balance during prolonged anoxia. *Physiol. Zool*. 57: 632-640.

41. Herbert, C.V. and D.C. Jackson (1985). Temperature effects on the responses to prolonged submergence in the turtle *Chrysemys picta bellii*. I. Blood acid-base and ionic changes during and following anoxic submergence. *Physiol. Zool*. 58: 655-669.

42. Herbert, C.V. and D.C. Jackson (1985). Temperature effects on the responses to prolonged submergence in the turtle *Chrysemys picta bellii*. II. Metabolic rate, blood acid-base and ionic changes, and cardiovascular function in aerated and anoxic water. *Physiol. Zool*. 58: 670-681.

43. Silver, R.B. and D.C. Jackson (1985). Ventilatory and acid-base responses to long-term hypercapnia in the freshwater turtle, *Chrysemys picta bellii*. *J. Exp. Biol*. 144: 661-672.

44. Jackson, D.C. (1985). Respiration and respiratory control in the green turtle, *Chelonia mydas*. *Copeia* 1985: 664-671.

45. Hitzig, B.M., J.C. Allen, and D.C. Jackson (1985). Central chemical control of ventilation and response of turtles to inspired CO_2. *Am. J. Physiol.* 249: R323-R328.

46. Silver, R.B. and D.C. Jackson (1986). Ionic compensation with no renal response to chronic hypercapnia in *Chrysemys picta bellii*. *Am. J. Physiol.* 251: R1228-R1234.

47. Jackson, D.C. (1987). Cardiovascular function in turtles during anoxia and acidosis: *in vivo* and *in vitro* studies. *Am. Zool*. 27: 49-58.

48. Wasser, J.S. and D.C. Jackson (1988). Acid-base balance and the control of respiration during anoxic and anoxic-hypercapnic gas breathing in turtles. *Respir. Physiol*. 71: 213-226.

49. Jackson, D.C., J.S. Wasser, and R.S. Silver (1988). Effect of induced hypercapnia on anaerobic metabolic rate of anoxic musk turtles. *Am. J. Physiol.* 254: R944-R948.

50. Cserr, H.F., M. DePasquale, and D.C. Jackson (1988). Brain and cerebrospinal fluid composition after long-term anoxia in diving turtles. *Am. J. Physiol.* 255: R338-R343.

51. Warburton, S.J., J.S. Wasser, and D.C. Jackson (1989). Cardiovascular and metabolic responses during anoxic submergence in bullfrog with and without maintained extracellular pH. *J. Exp. Zool*. 251: 13-19.

52. Wasser, J.S., E.V. Freund, L.A. Gonzalez, and D.C. Jackson (1990). Force and acid-base state of turtle cardiac tissue exposed to combined anoxia and acidosis. *Am. J. Physiol.* 259: R15-R20.

53. Wasser, J.S., K.C. Inman, E.A. Arendt, R.G. Lawler, and D.C. Jackson (1990). ^{31}P-NMR measurements of intracellular pH and high energy phosphate concentrations in isolated, perfused, working turtle hearts during anoxia and acidosis. *Am. J. Physiol.* 259: R521-R530.

54. Wasser, J.S., S.J. Warburton, and D.C. Jackson (1991). Extracellular and intracellular acid-base effects of submergence anoxia and nitrogen breathing in turtles. *Respir. Physiol*. 83: 239-252.

55. Jackson, D.C., E.A. Arendt, K.C. Inman, R.G. Lawler, G. Panol, and J.S. Wasser (1991). ^{31}P-NMR study of normoxic and anoxic perfused turtle heart during graded CO_2 and lactic acidosis. *Am. J. Physiol.* 260: R1130-R1136.

56. Wasser, J.S. and D.C. Jackson (1991). Effects of anoxia and graded acidosis on the levels of circulating catecholamines in turtles. *Respir. Physiol*. 84: 363-377.

57. Jackson, D.C., J.H. Singer, and P.T. Downey (1991). Oxidative cost of breathing in the turtle, *Chrysemys picta bellii*. *Am. J. Physiol.* 261: R1325-R1328.

58. Rosenberg, E., H. Brown, D. Jackson, and K. Cooper (1991). Basic medical physiology: the whole is more than the sum of its parts. *Advan. Physiol. Educ*. 6: 30 - 33.

59. Szewczak, J.M. and D.C. Jackson (1992). Acid-base state and intermittent breathing in the torpid bat, *Eptesicus fuscus*. *Respir. Physiol*. 88: 205-215.

60. Szewczak, J.M. and D.C. Jackson (1992). Ventilatory response to hypoxia and hypercapnia in the torpid bat, *Eptesicus fuscus*. *Respir. Physiol*. 88: 217-232.

61. Wasser, J.W., E.A. Arendt Meinertz, S.Y. Chang, R.G. Lawler, and D.C. Jackson (1992). Metabolic and cardiodynamic responses of isolated turtle hearts to ischemia and reperfusion. *Am. J. Physiol.* 262: R437-R443.

62. Szewczak, J.M. and D.C. Jackson (1992). Apneic oxygen uptake in the torpid bat, *Eptesicus fuscus*. *J. Exp. Biol*. 173:217-227.

63. Wasser, J.S., D.C. Jackson, S.Y. Chang, and S.J. Warburton (1993). Maintenance of high extracellular pH does not influence cell pH or metabolism in submerged anoxic bullfrogs. *J. Exp. Zool*. 265:619-626.

64. Watson, C.L., W.L. Few III, G. Panol, D.C. Jackson (1994). Lactic acidosis transiently increases metabolic rate of turtle myocytes. *Am. J. Physiol.* 266: R1238-R1243.

65. Jackson, D.C., H. Shi, J.H. Singer, P.H. Hamm, and R.G. Lawler (1995). Effects of input pressure on in vitro turtle heart during anoxia and acidosis: a ^{31}P-NMR study. *Am. J. Physiol.* 268: R683-R689.

66. Jackson, D.C., S.J. Warburton, E. Arendt Meinertz, R.G. Lawler, and J.S. Wasser (1995). The effect of prolonged anoxia at 3^{o}C on tissue high energy phosphates and phosphodiesters in turtles: a ^{31}P-NMR study. *J. Comp. Physiol*. B 165: 77-84.

67. Jackson, D.C. (1995). Energy balancing act during anoxia. *NIPS* 10: 145-146.

68. Warburton, S.J. and D.C. Jackson (1995). Turtle (*Chrysemys picta bellii*) shell mineral content is altered by exposure to prolonged anoxia. *Physiol. Zool*. 68:783-798.

69. Wasser, J.S., R.G. Lawler, and D.C. Jackson (1995). Nuclear magnetic resonance spectroscopy and its applications in comparative physiology. *Physiol. Zool*. 69: 1-34.

70. Ultsch, G.R. and D.C. Jackson (1995). Acid-base status and ion balance during simulated hibernation in freshwater turtles from the Northern portions of their ranges. *J. Exp. Zool*. 273: 482-493.

71. Ultsch, G.R. and D.C. Jackson (1996). pH and temperature in ectothermic vertebrates. *Bull. Alabama Mus. Nat. Hist.* 18: 1-41.

72. Jackson, D.C., V.I. Toney, and S. Okamoto (1996). Lactate distribution and metabolism during and after anoxia in the turtle, *Chrysemys picta bellii*. *Am. J. Physiol.* 271: R409-R416.

73. Shi, H., P.H. Hamm, R.S. Meyers, R.G. Lawler, and D.C. Jackson (1997). Mechanisms of pH_i recovery from NH_4Cl-induced acidosis in anoxic isolated turtle heart: a ^{31}P-NMR study. *Am. J. Physiol.* 272: R6-R15.

74. Shi, H. and D.C. Jackson (1997). Effects of anoxia, acidosis and temperature on the contractile properties of turtle cardiac muscle strips. *J. Exp. Biol*. 200: 1965-1973.

75. Jackson, D.C. (1997). Lactate accumulation in the shell of the turtle, *Chrysemys picta bellii*, during anoxia at 3 and 10^{o}C. *J. Exp. Biol*. 200: 2295-2300.

76. Farmer, C.G. and D. C. Jackson (1998). Air-breathing during activity in the fishes *Amia calva* and *Lepisosteus oculatus*. *J. Exp. Biol*. 201: 943-948.

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78. Crocker, C.E., G.R. Ultsch, and D.C. Jackson (1999). The physiology of diving in a north temperate and three tropical turtle species. *J. Comp. Physiol. B* 169: 249-255.

79. Jackson, D.C., Z. Goldberger, S. Visuri, and R.N. Armstrong (1999). Ionic exchanges of turtle shell in vitro and their relevance to shell function in the anoxic turtle. *J. Exp. Biol.* 202: 513-520.

80. Ultsch, G.R., M.E. Carwile, C.E. Crocker, and D.C. Jackson (1999). The physiology of hibernation among painted turtles: the eastern painted turtle, *Chrysemys picta picta*. *Physiol. Biochem. Zool*. 72: 493-501.

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82. Jackson, D.C. (2000). How a turtle's shell helps it survive prolonged anoxic acidosis. *News in Physiological Sciences* 15: 181-185.

83. Jackson, D.C., A.L. Ramsey, J.M. Paulson, C.E. Crocker, and G.R. Ultsch (2000). Lactic acid buffering by bone and shell in anoxic softshell and painted turtles. *Physiol. Biochem. Zool*. 73:290-297.

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85. Crocker, C.E., R. Feldman, G.R. Ultsch, and D.C. Jackson (2000). Overwintering behavior and physiology of eastern painted turtles (*Chrysemys picta picta*) in Rhode Island. *Can. J. Zool*. 78: 936-942.

86. Jackson, D.C. (2000). Living without oxygen: lessons from the freshwater turtle. *Comp. Biochem. Physiol. A*. 125: 299-315.

87. Reese, S.A., C.E. Crocker, D.C. Jackson, and G.R. Ultsch (2000). The physiology of hibernation among painted turtles: the midland painted turtle (*Chrysemys picta marginata*). *Respir. Physiol*. 24: 43-50.

88. Jackson, D.C., T. Wang, P. Koldkjaer, and E.W. Taylor (2001). Lactate sequestration in the carapace of the crayfish *Austropotamobius pallipes* during exposure in air. *J. Exp. Biol*. 204: 941-946.

89. Jackson, D.C., C.E. Crocker, and G.R. Ultsch (2001). Mechanisms of homeostasis during long-term diving and anoxia in turtles. (Linzen Lecture) *Zoology*. 103: 150-156.

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91. Reese, S.A., D.C. Jackson, and G.R. Ultsch (2002). The physiology of overwintering in a turtle that occupies multiple habitats, the common snapping turtle (*Chelydra serpentina*). *Physiol. Biochem. Zool*. 75: 432-438.

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93. Jackson, D.C. (2002). Hibernating without oxygen: physiological adaptations of the painted turtle. *J. Physiol*. (London) 543.3: 731-737.

94. Jackson, D.C. and S.F. Denniston (2003). Effect of experimental anemia on blood ion and acid-base status of turtles during submergence in aerated water at 3^{o}C. *Comp. Biochem. Physiol. A* 135: 597-603.

95. Jackson, D.C., D.V. Andrade, and A.S. Abe. (2003). Lactate sequestration by osteoderms of the broad-nose caiman, *Caiman latirostris*, following capture and forced submergence. J. Exp. Biol. 206: 3601-3606.

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97. Jackson, D.C. (2004). Acid-base balance during hypoxic hypometabolism: selected vertebrate strategies. *Respir. Physiol. Neurobiol*. 141: 273-283.

98. Jackson, D.C. (2004). Surviving extreme lactic acidosis: the role of calcium lactate formation in the anoxic turtle. *Respir. Physiol. Neurobiol*. 144: 173-178.

99. Warren, D.E. and D.C. Jackson (2004). Swimming effects on metabolic recovery from anoxia in the painted turtle. *J. Exp. Biol*. 207: 2705-2713.

100. Reese, S.A., G.R. Ultsch, and D.C. Jackson (2004). Lactate accumulation, glycogen depletion, and shell composition in hatchling turtles during simulated hibernation. *J. Exp. Biol.* 207: 2889-2895.

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103. Warren, D.E. and D.C. Jackson (2005). The role of mineralized tissue in the buffering of lactic acid during anoxia and exercise in the leopard frog, *Rana pipiens*. *J. Exp. Biol*. 208:1117-1124.

104. Bobb, V.T. and D.C. Jackson (2005). Effect of graded hypoxic and acidotic stress on contractile force of heart muscle from hypoxia-tolerant and hypoxia-intolerant turtles. *J. Exp. Zool.* 303A: 345-353.

105. Skovgaard, N., Warren, D.E., Jackson, D.C., and Wang, T. (2005). Endothelin-1 causes systemic vasodilatation in anaesthetised turtles (*Trachemys scripta*) through activation of ET_B-receptors. J. Exp. Biol. 208: 3739-3746.

106. Warren, D.E., S.A. Reese, and D.C. Jackson (2006). The factors that limit survival of red-eared slider turtles, *Trachemys scripta*, during long-term anoxic submergence at 3ºC. *Physiol. Biochem. Zool.* 79: 736-744.

107. Jackson, D.C., S.E. Taylor, V.S. Asare, D. Villarnovo, J.M. Gall, and S.A. Reese (2007). Comparative shell buffering properties correlate with anoxia tolerance in freshwater turtles. *Am. J. Physiol*. 292: R1008-R1015.

108. Jackson, D.C. (2007). Temperature and hypoxia in ectothermic tetrapods. *J. Therm. Biol.* 32: 125-133.

109. Davis, E.C. and D.C. Jackson (2007). Lactate uptake by skeletal bone in anoxic turtles, *Trachemys scripta*. *Comp. Biochem. Physiol. A* 146: 299-304.

110. Warren, D.E. and Jackson, D.C. (2007). Effects of temperature on anoxic submergence: skeletal buffering, lactate distribution and glycogen depletion in the turtle, Trachemys scripta. *Am. J. Physiol*. 293: R458-R467.

111. Warren, D.E. and D.C. Jackson (2008). Lactate metabolism in anoxic turtles: an integrative review. *J. Comp. Physiol. B* 178: 133-148.

112. Jackson, D.C. and G.R. Ultsch (2010). Physiology of hibernation under the ice by turtles and frogs. *J. Exp. Zool*. 313A: 311-327.

113. Milsom, W.K. and D.C. Jackson (2011). Gas exchange during hibernation. *Compr. Physiol* 1: 397-420. doi: 10.1002/cphy.c090018

114. Jackson, D.C. (2011). Academic genealogy and direct calorimetry: a personal account. *Adv. Physiol, Educ*. 35: 120-127.

115. Harter, T.S., R.B. Shartau, D.W. Baker, D.C. Jackson, A.L. Val, and C.J. Brauner (2014). Preferential intracellular pH regulation represents a general pattern of pH homeostasis during acid-base disturbances in the armoured catfish, Pterygoplichthys pardalis. J Comp Physiol B. 184:709–718

116. Wang, T. and D.C. Jackson (2016). How and why pH changes with body temperature: the α-stat hypothesis. *J. Exp. Biol.* 219: 1090-1092.

117. Warren, D.E. and D.C. Jackson (2017)**.** The metabolic consequences of repeated anoxic stress in the western painted turtle, *Chrysemys picta bellii*. Comp.Biochem. Physiol. A. Molecular Integrat. Physiol.. 203:1-8.

c. Books

Jackson, D.C. (2011). *Life in a Shell: A Physiologist's View of a Turtle*. Harvard Univ. Press, Cambridge, MA. 192 pp.

Jackson, D.C. (2013). *Celebrating Life: An Appreciation of Animals in Verse and Prose*. Create Space, 88 pp.

Jackson, D.C. (2017). *Poetic License*. 48 Hour Press, 64 pp.

d. Other publications

1. Hammel, H.T., H.T. Andersen, D.C. Jackson, and J.D. Hardy (1961). Thermal regulatory responses of unanesthetized dogs during hypothalamic temperature measurement and stimulation. *ASD Technical Report 61-489*, Wright-Patterson AFB, Ohio.

2. Hammel, H.T., J.A. Hildes, D.C. Jackson, and H.T. Andersen (1962). Thermal and metabolic response of the Kalahari Bushmen to moderate cold exposure at night. *Technical Report AAL-TDR-62-44*, Arctic Aeromed. Lab., Alaska.

3. Hammel, H.T., D.C. Jackson, J.A.J. Stolwijk, and J.D. Hardy (1963). Hypothalamic temperatures in dog and monkey and thermoregulatory responses to environmental factors. *Technical Report AMRL-TDR-63-5*, Wright-Patterson AFB, Ohio.

4. Jackson, D.C. (1984). pH Regulation. In: *McGraw-Hill Encyclopedia of Science and Technology*, 6th Ed., pp. 313-314. (and subsequent editions)

5. Jackson, D.C. (1995). Homeostasis in Extreme Environments. Grass Instruments Company annual scientific calendar and book of essays.

6. Jackson, D.C. (1995). Energy balancing act during anoxia. News in Physiological Sciences. 10: 145.

e. Book reviews

1. Man in the Cold, by J. LeBlanc. Reviewed in Quart. Rev. Biol. 52: 330, 1977.

2. Physiological Adaptations to the Environment, ed. by F.J Vernberg. Reviewed in Quart. Rev. Biol. 52: 315-316, 1977

3.Comparative Physiology of Animals: An Environmental Approach, by R.W. Hill. Reviewed in Nature, 266: 95, 1977.

4. Comparative Respiratory Physiology of Animals, by J.N. Cameron. Reviewed in Amer. Zool. 1990.

5. *Back to the beginning: The Rise of Experimental Biology: An Illustrated History*, by Peter Lutz. Reviewed in J. Exp. Biol. 205: 3577, 2002.

f. Invited lectures

1970 - Physiology Department, SUNY, Buffalo
1971 - Dept. of Biol., Case-Western Reserve Univ., Symposium on Comparative Physiology.
1972 - Comparative Physiology class, Harvard Univ.
Biology Dept., Univ. of Pennsylvania.
1976 - Physiology Department, Univ. of Pennsylvania

Department of Physiology, Univ. of Indiana, Bloomington

1977 - Department of Physiology, Texas Tech Univ., Lubbock

International symposium on Acid-Base Physiology, Strasbourg

J.B. Pierce Laboratory, Yale Univ., New Haven

Concord Field Station, Harvard Univ.

1979 - Physiology Department, Rutgers Univ.

Zoology Department, Univ. of Rhode Island

1980 - AAAS, Pacific Div., Symposium on Amphibian Physiology, UC Davis

International Symposium on Comparative Physiology, Sandbjerg, Denmark (Birthday Festschrift for Knut Schmidt-Nielsen)

Biology Department, Buffalo State College

Zoology Department, Univ. of Massachusetts, Amherst

1981 - Max Planck Institute for Experimental Medicine, Gottingen

Physiology Department, Karlsruhe, West Germany

Respiratory Physiology Laboratory, CNRS, Strasbourg, France

Biology Department, Univ. of Oldenburg, West Germany

1982 - Department of Zoology, Univ. of Oklahoma

International Symposium on Gas Exchange in Lower Vertebrates, Gottingen, West Germany

J.B. Pierce Laboratory, Yale Univ. New Haven

Symposium on Comparative Respiratory Physiology, NE Physiologists Meeting, Harvard Univ.

Mount Desert Island Biological Laboratory, Salsbury Cove, ME

1983 - Department of Zoology, Univ. of British Columbia

Society of Ichthyologists and Herpetologists, Symposium on the Physiology of Sea Turtles, Tallahassee, Florida

1984 - Canadian Society of Zoologists, Symposium on Comparative Physiology of Gas Exchange, Acadia Univ., Wolfville, NS

American Society of Zoologists, Symposium on Cardiovascular Adaptations of Reptiles, Denver

1985 - Pulmonary Unit, Massachusetts General Hospital

Graduate Program in Cell and Molecular Biol., Brown Univ.

1986 - Department of Biology, Boston Univ.

NFS Workshop on New Directions in Physiological Ecology, Washington, DC

International Conference on Comparative Physiology, Crans-sur-Sierre, Switzerland

Symposium on Ionic and Acid-Base Regulation, Banff, Alberta

American Society of Zoologists, Symposium on Cutaneous Exchange of Gases

and Ions

1987 - Symposium on Hypoxia (5th Annual), Lake Louise Lodge, Alberta
Laboratoire d'Etude des Regulations Physiologiques, CNRS, Strasbourg, France

1988 - Mini-symposium on metabolic depression, Leiden, The Netherlands
Physiology Dept., Max Planck Inst. Exp. Med, Gottingen, FRG
Zoology Dept., Univ. of Dusseldorf, FRG
Dept. of Physiology, Univ. of Bochum, FRG
Symposium honoring Dr. H.T. Hammel, Las Vegas, NV
Dept. of Biology, Univ. of Oldenburg, FRG
Dept. of Zoophysiology, Univ. of Aarhus, Denmark
Dept. of Zoophysiology, Univ. of Odense, Denmark
Symposium on Acid-Base Chemistry, Biochemistry of Exercise Conference (7th), London, Ontario
Symposium on Adaptations to Anoxia of Ectothermic Vertebrates (Speaker and Chairman), Intern'l Cong. Comp. Physiol. and Biochem. Baton Rouge

1989 - Zoology Dept., Dalhousie Univ. Halifax, NS
Dept. of Anatomy, Univ. of Chicago

1990 - Zoology Dept., Univ. of Rhode Island
Division of Cellular Biosciences, NSF

1991 - Respiratory Group, Harvard School of Public Health
Lovelace Institute, Albuquerque
Conference on Comparative Physiology, São Sebastião, São Paulo, Brazil

1992 - Williams Lecture, Univ. of Akron, Department of Biology
Dark-cutting Beef Workshop, Kansas State Univ.
NMR symposium at joint meeting of SEB, AJP, ASZ, and CSZ, Cambridge, England, Queens College.
Respiration in Health and Disease: Lessons from Comparative Physiology, Bochum, FRG

1993 - Visiting Lecturer, Univ. of California, Irvine
Hypoxia Symposium, Lake Louise, Canada

1994 - Symposium on Contributions of Comparative Physiology to Theoretical Biology, Am. Physiol. Soc., San Diego

1995 - Zoology Dep. Univ. of Rhode Island

1997 - pH Symposium at Soc. Exp. Biol. meeting in Canterbury, UK
School of Biological Science, UNSW, Sydney, Australia
Department of Zoology, University of Adelaide, Australia
Department of Zoology, University of Tasmania, Australia
Sciences Department, J. Cook Univ. at Cairns, Australia

1998 – Danish Comparative Cardiorespiratory Physiologists, Odense

1999 – August Krogh Distinguished Lecture, Comparative Physiology Section, APS, Washington, DC, April

ESCPB Meeting, Aarhus, Denmark, June

Department of Biology, University of Birmingham, UK, July

2000 – Department of Biology, New Mexico State Univ., March

Bernt Linzen Lecture, German Zoological Society, Bonn, June

Symposium on Tradeoffs in Physiology, Keynote lecture, Bonn, Germany, June

Ecophysiology Section, Wegner Inst. for Polar Research, Bremerhaven, Germany, June

Symposium on Hypoxia, International Comparative Physiology Meeting, Cambridge, UK, July/Aug, 2000

2001 – Symposium honoring Ron Lawler, Brown University, In vivo NMR, April

2002 – EEB Brown Bag Seminar, 1 Feb

Sigma Xi Lecture at Rhode Island College, 3 April

Univ. of São Paulo, Ribeirão Preto, Brazil, Oct

Univ. of São Paulo, São Carlos, Brazil, Dec

2003 - Symposium honoring Prof. Peter Scheid, San Diego, April

EB 2003 Symposium on Acid-Base Physiology, San Diego, April

Dept. of Zoophysiology, Univ. of Aarhus, Denmark, July

William Hoar Lecturer, UBC Zoology Dept., Nov

2004 - Life in the Cold Symposium, On a ship cruising the Inside Passage of Alaska, July

International Comp. Bioch. Physiol. Congress, Ithala, South Africa, August

Department of Zoophysiology, Aarhus University, Denmark, August

2006 - Brock Univ., St. Catharines, ON, Canada

H.T. Hammel Distinguished Lecture in Human Biology, Indiana Univ., Bloomington

Adaptation to Stress Symposium, SEB Meeting, Canterbury, UK

Living with and without Oxygen Symposium, SEB Meeting, Canterbury, UK

From shunting frogs to necrophysiology, Festschrift for David Jones, UBC, Vancouver

2007 - Univ. of British Columbia, Department of Zoology, January

Int'l Cong. Comp. Physiol. Biochem., Salvador, Brazil, August

2009 – International Nephrology Conference, Florence, Italy, September

2010 – Experimental Biology 2010, Symposium on History of Comparative Physiology

2011 – Brown Bookstore, reading and signing for *Life in a Shell*

University of Aarhus, Denmark – Festskrift for Hans Gesser

RACMEM (Research Advances and Controversies in the Measurement of Energy Metabolism) Conference – Maastricht Univ. – Keynote address

RI Audubon Society, Bristol – Talk and book signing for *Life in a Shell*

2013 – Brown Bookstore, reading and signing for *Celebrating Life*

Experimental Biology, 2013, Symposium on Bone Physiology under Environment Stress

2014 – Louisiana State Univ. Medical School, Dept. of Physiology, February

2015 – Hilltop Arboretum, LSU Baton Rouge, reading and book signing for *Life in a Shell.*

National Association of Biology Teachers, Providence, RI, Keynote lecture sponsored by American Physiological Society.

Research grants

a. past grants

1966-1969, NIH, Heat Production of Diving Reptiles, PI.

1969-1972, NIH, Heat Production of Diving Animals, PI

1973-1974, BRSG, Brown University, PI.

1974-1976, NIH, Respiratory Control and Body Temperature, PI

1974-1976, NSF, Temperature, Blood pH, and Gas Exchange in Cold-blooded Vertebrates, PI.

1976-1977, NSF Respiration and Energetics in Adult Green Turtles, co-PI.

1976-1979, NSF, The Control of Gas Exchange in Cold-blooded Vertebrates, PI

1978-1979, NSF, Purchase of Blood Gas Analyzer, PI.

1979-1982, NSF, Respiratory Control and Acid-Base Homeostasis in Ectothermic Vertebrates, PI.

1982-1985, NSF, Acid-Base Balance in Ectothermic Vertebrates, PI.

1985-1988, NSF, Acid-Base Balance in Ectothermic Vertebrates, PI.

1988-1991, NSF, Mechanisms of Anoxic Tolerance and Metabolic Depression, PI.

1989-1994, NIH, Training Program in Pathophysiology of Pulmonary Disease, Participant, Frederick Hoppin, PI

1991-1995, NSF, Mechanisms of Anoxic Tolerance in Heart Muscle, PI.

1995-1996, NSF, Dissertation Award: Did Lungs and Intracardiac shunting Evolve to Oxygenate the Heart?, Sponsor.

1995-1998, NSF, Physiological Mechanisms of Anoxic Tolerance, PI.

1998-2002, NSF, Physiological Mechanisms of Anoxic Tolerance, PI.

2001-2006, NSF, Physiological Mechanisms of Hypoxic Tolerance, PI

Service

1) to the University

Acting Director, Graduate Program in Physiology, 1995
Member, Biology Curriculum Committee, 1990-2004
Member, UTRA Selection Committee, 1992-1996
Undergraduate Advisor, 5 Freshman CAP students yearly and ~20 Sc.B. or A.B. Biol in each of classes of 1995, 1998, 2001, and 2004)
Member, University Nominations Committee, 1993-1996; Chair, Jan 1995-June 1996
Member, Medical Committee on Academic Standing, 1993-1996
Member, Search Committee for Dean of the College, 1993-94; 1994-95
Member, Search Committee, Dept. of Ecol. & Evol. Biol., 1995
Member, Faculty Committee to select Arnold, Baker, and Emery Fellows, 1994-96
Member, Independent Concentration Evaluation Committee, 1996
Member, University Committee on Academic Standing, 1997-2000
Member, Search Committee for University Provost, 1997-98
Member, Admissions Committee, MD/PhD Program, 1998-2000
Member, Nominating Committee for Goldwater Fellowships, 1999-2002
Member, Academic Priorities Subcommittee, 1999-2002
Member, Selection Committee for Royce Fellowships, 2000
Member, Review Committee, Undergraduate Fulbright Awards, 2001
Randall Counsellor, 2001-2002
Member, Medical School Committee on Academic Standing, 2002-2007
Member, Medical School Committee on Medical Faculty Appointments, 2002-2005
Member, Faculty Committee to select Arnold, Baker, and Emery Fellows, 2003
Member, Health Careers Advisory Committee, 2003-2007
Member, Search Committee for Dean of the Faculty, 2003
Member, Search Committee, Associate Dean for Health Careers, 2004-2005
Member, TPA Committee, one-semester appointments, Spring, 2005 and Spring 2006
Chair, IACUC Committee, 2005-2008
Alternate member, 2009-2010
Member, PLME Admissions Committee, 2010-2016
Beckman Scholars Selection Committee, 2011-2012

2a) to the Profession – committees

Member, NIH Site Visit teams, 1974, 1984

Member, Scientific Advisory Panel, NSF, Program in Regulatory Biology, 1983-1986.

American Physiological Society, Comparative Physiology Section, Steering Committee, 1983-1985, Chairman, 1986.

External examiner on Ph.D. theses: U. of Aarhus, Denmark, 1980, 2003; U. of Brit. Columbia, 1984, 1987, 1994, 2007, U. of Sydney, Australia, 1985, University of Massachusetts, 1986, Dalhousie University, 1989, Univ of Alberta, 1993, Univ. of Rhode Island, 2001

Co-Organizer, Annual Meeting of New England Physiologists, Brown Univ., 1984.

NIH Study Section, Ad hoc member: 1991 (NRSA panel); 1992 (Non-mammalian animal Models)

Program Officer, NSF, Washington, DC, 9/91 - 8/92

Delegate (representing Am. Physiol. Soc.) to FASEB Consensus Conference on Biological Funding, Bethesda, 1993 and 1994

Member, Biology 3 Panel, International Science Foundation, 1994

Member, Scientific Advisory Panel, NSF, Program in Integrative Animal Biology, 1999

Member, Research Committee, American Heart Ass'n, New England Affiliate, 2000-2002

Member, Organizing Committeee, Intersociety Comparative Physiology Meeting, San Diego, August, 2002

2b) to the Profession - editorial

Member, Editorial Board, Journal of Applied Physiology, 1976-1980

Member, Editorial Board, American Journal of Physiology: Regulatory, Integrative and Comparative Physiology, 1980-1990; 2002-present

Associate Editor, American Journal of Physiology: Regulatory, Integrative and Comparative Physiology, 1990-1995

Member, Editorial Board, Physiological Zoology, 1984-1990

Member, Editorial Board, Respiration Physiology, 1988-1998

Acting Section Editor, J. Exp. Zool, 1989

Ad hoc reviewer for Am. J. Physiol., Binational Science Foundation (Israel), Can. J. Zool., Chelonian Conserv. Biol., Copeia, Comp. Biochem. Physiol., Funct. Ecol., J. Appl. Physiol., J. Comp. Physiol., J. Exp. Biol., J. Exp. Zool., J. Herpetol., J. Physiol. (UK), Nat'l Geo. Soc., Naturwissenschaften, NSERC

(Canada), NSF, Physiol. Biochem Zool., PNAS, Resp. Physiol. & Neurobiol., Science, J. Therm. Biol.

Section Editor, Comparative Physiology Section, Annual Review of Physiology, 1988-1993

Associate Editor, Comp.Biochem. Physiol., 2002-2005

Guest Editor, Northeastern Naturalist, 2007

3) to the Community

1999-present – Science Fair judge at Boston Collegiate Charter School, 2/year

2000-2002 – Presentation to Young Scientists Program, yearly

2005-2007 – Presentation to Summer H.S. Program, So You Want to be a Doctor

Academic Honors

NIH Pre-doctoral Fellowship, Univ. of Pennsylvania, 6/59 - 6/61

Pennsylvania Plan Scholar, Univ. of Pennsylvania, 6/68 - 5/71

Fulbright Travel Fellowship, 1981

Fellow, AAAS, elected 1984

Fogarty Senior International Fellow, 10/87 - 7/88

Williams Lecture, Univ. of Akron, Department of Biology, 1992

August Krogh Distinguished Lectureship, American Physiological Society, Experimental Biology 99, 1999

Bernt Linzen Lecture, German Zoological Society, Bonn, 2000

William Hoar Lecture, Univ. of British Columbia, Department of Zoology, 2003

Dean's Teaching Excellence Award, Brown U., 2004

H.T. Hammel Distinguished Lecture in Human Biology, Indiana Univ., 2006

Dean's Award for Excellence in Undergraduate Teaching, Advising, and Mentoring in the Biological Sciences, 2012

Teaching and advising at Brown (last five years)

2012-2013	Sophomore advisor, 4 students
	Semester II, Bio 1180, all lectures
2014-2015	Semester I, BIOL0940B, Sophomore seminar
2015-2016	Semester I, BIOL0940B, Sophomore seminar
2016-2017	Semester I, BIOL0940B, Sophomore seminar
2017-2018	Semester I, BIOL0940B, Sophomore seminar

Teaching elsewhere

2014 – Semester II, Senior seminar, Univ. of New Orleans
2015 – Semester II, Senior seminar, Univ. of New Orleans
2016 - Semester II, Senior seminar, Univ. of New Orleans
2017 - Semester II, Senior seminar, Univ. of New Orleans