

Literature Cited

- Alexander G. 1979. Cold thermogenesis. in: Robertshaw D. ed. Int. Rev. Physiol. 20, Environ. Physiol. III. Park, Baltimore. pp 43-155.
- Allen J. A. 1877. The influence of physical conditions in the genesis of species. Radical Rev. 1:108-140.
- Aloia R. C., Augee M. L., Orr G. R. and Raison J. K. 1986. A critical role of membranes in hibernation. in: Heller H. C., Musacchia X. C. Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 19-26.
- Aloia R. C. and Raison J. K. 1989. Membrane function in mammalian hibernation. Biochim. Biophys. Acta. 988:123-146.
- Archer M. 1984. The Australian marsupial radiation. in: Archer M. and Clayton G. eds. Vertebrate Zoogeography and Evolution in Australasia. Hesperian, Perth. pp 633-808.
- Aschoff J. 1981. Thermal conductance in mammals and birds: its dependence on body size and circadian phase. Comp. Biochem. Physiol. 69A:611-619.
- Augee, M. L. and Gooden B. A. 1992. Monotreme hibernation - some afterthoughts. in: Augee M. L. ed. Platypus and Echidnas. Roy. Zool. Soc. NSW, Sydney. pp 174-176.
- Augee M. L., Pehowich D. J., Raison J. K. and Wang L. C. H. 1984. Seasonal and temperature-related changes in mitochondrial membrane associated with torpor in the mammalian hibernator *Spermophilus richardsonii*. Biochim. Biophys. Acta. 776:27-36.
- Barnes B. M., Kretzmann M., Licht P. and Zucker I. 1986a. The influence of hibernation on testis growth and spermatogenesis in the golden-mantled ground squirrel, *Spermophilus lateralis*. Biol. Reprod. 35:1289-1297.
- Barnes B. M., Kretzmann M., Licht P. and Zucker I. 1986b. Reproductive development in hibernating ground squirrels. in: Heller H. C., Musacchia X. J. and Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 245-251.
- Barnes B. M. and Ritter D. 1993. Patterns of body temperature change in hibernating arctic ground squirrels. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. Life in the Cold: Ecological, Physiological, and Molecular Mechanisms. Westview Press, Boulder. pp 119-130.
- Bartholomew G. A. 1956. Temperature regulation in the macropod marsupial, *Setonix brachyurus*. Physiol. Zool. 29: 26-40.
- Bartholomew G. A. 1982. Body temperature and energy metabolism. in: Gordon M. S. ed. Animal physiology. MacMillan, New York. pp 333-406.

- Bartholomew G. A. and Hudson J. W. 1962. Hibernation, estivation, temperature regulation, evaporative water loss, and heart rate of the pygmy possum, *Cercartetus nanus*. *Physiol. Zool.* 35:94-107.
- Bartholomew G. A., Vleck D. and Vleck C. M. 1981. Instantaneous measurements of oxygen consumption during preflight warm-up and post-flight cooling in sphingid and saturniid moths. *J. Exp. Biol.* 90:17-32.
- Baudinette R. V. 1982. The energetics of locomotion in dasyurid marsupials. in Archer M. ed. *Carnivorous Marsupials*. Roy Zool. Soc. NSW, Sydney. pp 261-265.
- Baudinette R. V., Nagle K. A., and Scott R. A. D. 1976. Locomotory energetics in dasyurid marsupials. *J. Comp. Physiol.* 109:159-168.
- Baust J. G. and Brown R. T. 1980. Heterothermy and cold acclimation in the Arctic ground squirrel *Citellus undulatus*. *Comp. Biochem. Physiol.* 67A:447-452.
- Bergmann C. 1847. Ueber die Verhältnisse der Wärmeökonomie der Tiere zu ihrer Grösse. *Göttinger Studien*, Göttingen. pp 595-708.
- Bharma S. and Milsom W. K. 1993. Acidosis and metabolic rate in golden mantled ground squirrels (*Spermophilus lateralis*). *Resp. Physiol.* 94:337-351.
- Bladon R. 1993. The reproductive ecology of the eastern pygmy possum *Cercartetus nanus*. in: Augee M. L. ed. *Abstracts of The Sixth International Theriological Congress*. University of New South Wales, Sydney. p 26.
- Blickler P. E. 1984. CO₂ balance of a heterothermic rodent: comparison of sleep, torpor and awake states. *Am. J. Physiol.* 246:R49-R55.
- Bligh J. 1973. Temperature Regulation in Mammals and Other Vertebrates. North-Holland, Amsterdam.
- Bradley S. R. and Deavers D. R. 1930. A re-examination of the relationship between thermal conductance and body weight in mammals. *Comp. Biochem. Physiol.* A65:465-476.
- Bridges C. R. and Butler P. J. eds 1989. *Techniques in Comparative Respiratory Physiology: An Experimental Approach*. Cambridge University Press, Cambridge.
- Brown A. E. 1909. The tuberculin test in monkeys: with notes on the temperature of mammals. *Proc. Zool. Soc. Lond.* 1909:81-90.
- Brown C. R. and Bernard R. T. F. 1994. Thermal preference of Schreiber's long-fingered (*Miniopterus schreibersii*) and Cape horseshoe (*Rhinolophus capensis*) bats. *Comp. Biochem. Physiol.* 107A:439-449.
- Brown J. H. and Bartholomew G. A. 1969. Periodicity and energetics of torpor in the kangaroo mouse, *Microdipodops pallidus*. *Ecology* 50:705-709.

- Buffenstein R. 1984a. Energy and water balance during torpor and hydopenia in the pigmy gerbil, *Gerbillus pusillus*. J. Comp. Physiol. B154:535-544.
- Buffenstein R. 1984b. The importance of microhabitat in thermoregulation and thermal conductance in two Namib rodents - a creative dweller, *Aethomys namaquensis*, and burrow dweller, *Gerbillurus paeba*. J. Therm. Biol. 9:235-241.
- Buffenstein R. 1985. The effect of starvation, food restriction, and water deprivation on thermoregulation and average daily metabolic rates in *Gerbillus pusillus*. Physiol. Zool. 58:320-328.
- Buffenstein R. and Jarvis J. U. M. 1985. Thermoregulation and metabolism in the smallest African gerbil, *Gerbillus pusillus*. J. Zool. Lond. 205:107-121.
- Buffenstein R. and Yahav S. 1991. Is the naked mole-rat *Heterocephalus glaber* an endothermic yet poikilothermic mammal? J. Therm. Biol. 4:227-232.
- Cade T. J. 1964. The evolution of torpidity in rodents. Ann. Acad. Sci. Fenn. Ser. 71:79-112.
- Canguilhem B., Malan A., Masson Pévet M., Nobelis P., Kirsch R., Pévet P. and Minor J. Le. 1994. Search for rhythmicity during hibernation in the European hamster. J. Comp. Physiol. B163:690-698.
- Cannon B. and Nedergaard J. 1985. Biochemical mechanisms of thermogenesis. in: Gilles R. ed. Circulation, Respiration, and Metabolism. Springer-Verlag, Berlin. pp 502-518.
- Carpenter F. L. and Hixon M. A. 1988. A new function for torpor: fat conservation in a wild migrant hummingbird. Condor 90:373-378.
- Chappell M. A. 1980. Thermal energetics and thermoregulatory costs of small arctic mammals. J. Mammal. 62:278-291.
- Chappell M. A. and Bachman G. C. 1995. Aerobic performance in Belding's Ground Squirrels (*Spermophilus beldingi*): variance, ontogeny, and the aerobic capacity model of endothermy. Physiol. Zool. 68:421-442.
- Chappell M. A. and Bartholomew G. A. 1981. Standard operative temperatures and thermal energetics of the antelope ground squirrel *Ammospermophilus leucurus*. Physiol. Zool. 54:81-93.
- Clausen T. C., Hardeveld V. and Everts M. E. 1991. The significance of cation transport in the control of energy metabolism and thermogenesis. Physiol. Rev. 71:733-744.
- Coburn D. K. and Geiser F. 1996. Daily torpor and energy savings in a subtropical blossom-bat, *Syconycteris australis* (Megachiroptera). in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 39-45.

- Colquhoun E. Q. and Clark M. G. 1991. Open question: has thermogenesis in muscle been overlooked and misinterpreted? *News Physiol. Sci.* 6:256-259.
- Crawley M. J. 1993. GLIM for Ecologists. Blackwell Scientific Publications, Oxford.
- Crompton A. W. and Jenkins F. A. 1973. Evolution. *Ann. Rev. Earth. Plan. Sci.* 1:131.
- Daan S., Barnes B. M., and Strijkstra A. M. 1991. Warming up for sleep? Ground squirrels sleep during arousals from hibernation. *Neurosci. Lett.* 128:265-268.
- Davis D. E. 1967. The annual rhythm of fat deposition in woodchucks *Marmota monax*. *Physiol. Zool.* 40:391-402.
- Davis P. M. C., Patterson J. W. and Bennett E. L. 1981. Metabolic coping strategies in cold tolerant reptiles. *J. Therm. Biol.* 6:321-330.
- Davis W. H. 1970. Hibernation: ecology and physiological ecology. in: Wimsatt W. A. ed. *Biology of Bats I*. Academic Press, New York. pp 265-300.
- Davis W. H. and Reite O. B. 1967. Responses of bats from temperate regions to changes in ambient temperature. *Biol. Bull.* 132:320-328.
- Dawson T. J. 1969. Standard energy metabolism of marsupials. *Nature* 221:383.
- Dawson T. J. 1989. Responses to cold of monotremes and marsupials. in: Wang L. C. H. ed. *Advances in Comparative and Environmental Physiology*. Springer-Verlag, Berlin. pp 256-288.
- Dawson T. J. and Dawson W. R. 1982. Metabolic scope and conductance in response to cold of some dasyurid marsupials and Australian rodents. *Comp. Biochem. Physiol.* 71A:59-64.
- Dawson T. J. and Hulbert A. J. 1969. Standard energy metabolism of marsupials. *Nature* 221:383.
- Dawson T. J. and Hulbert A. J. 1970. Standard metabolism, body temperature and surface areas of Australian marsupials. *Am. J. Physiol.* 218:1233-1238.
- Dawson T. J. and Olson J. M. 1988. Thermogenic capabilities of two opossum *Monodelphis domestica* when warm and cold acclimated: similarities between American and Australian marsupials. *Comp. Biochem. Physiol.* 89A:85-91.
- Dawson T. J. and Wolfers J. M. 1978. Metabolism, thermoregulation and torpor in shrew sized marsupial of the genus *Planigale*. *Comp. Biochem. Physiol.* 59A:305-309.
- Deboer T. and Tobler I. 1994. Sleep EEG after daily torpor in the Djungarian hamster: similarity to the effects of sleep deprivation. *Neurosci. Lett.* 166:35-38.
- Doran H. E. and Guise J. W. B. 1984. Single equation methods in econometrics: applied regression analysis. University of New England Press, Armidale, Australia.

- Eisenberg J. F. 1981. The Mammalia 1 Radiation: An Analysis of Trends in Evolution, Adaptation, and Behaviour. University of Chicago Press, Chicago.
- Eldershaw T. P. D., Ye J., Clark M. G. and Colquhoun E. Q. 1996. Vasoconstrictor-induced thermogenic switching in endotherm and ectotherm muscle. in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 311-318.
- Elliot J. A., Bartness T. J. and Golcman B. D. 1987. Role of short photoperiod and cold exposure in regulating daily torpor in Djungarian hamster. *J. Comp. Physiol.* 161A:245-253.
- Ellison G. T. H. 1993. Evidence of climatic adaptation in spontaneous torpor among pouched mice *Saccostomus campestris* from southern Africa. *Acta Theriol.* 38:49-59.
- Ellison G. T. H. 1995. Thermoregulatory responses of cold-acclimated fat mice (*Steatomys pratensis*). *J. Mammal.* 76:240-247.
- Else P. L. and Hulbert A. J. 1985. Mammals: an allometric study of metabolism at tissue and mitochondrial level. *Am. J. Physiol.* 248:R415-R421.
- Feist D. D. and White R. G. 1989. Terrestrial mammals in cold. in: Wang L. C. H. ed. Advances in Comparative and Environmental Physiology. Springer-Verlag, Berlin. pp 327-360.
- Fisher K. C. 1964. On the metabolism of periodic arousal in the hibernating ground squirrel. *Ann. Acad. Sci. Fenn. Ser. A71:143-156.*
- Fisher K. C. and Manery J. F. 1967. Water and electrolyte metabolism in heterotherms. in: Fisher K. C., Dawe A. R., Lyman C. P., Schönbaum F. and South F. E. eds. Mammalian Hibernation III. Oliver and Boyd, London. pp 235-279.
- Fleming M. R. 1980. Thermoregulation and torpor in the sugar glider, *Petaurus breviceps* (Marsupialia: Petauridae). *Aust. J. Zool.* 28:521-534.
- Fleming M. R. 1985a. The thermal physiology of the mountain pygmy-possum *Burramys parvus* (Marsupialia: Burrarnyidae). *Aust. Mammal.* 8:79-90.
- Fleming M. R. 1985b. The thermal physiology of the feathertail glider *Acrobates pygmaeus* (Marsupialia: Burra nyidae). *Aust. J. Zool.* 33:667-681.
- Florant G. L. and Heller H. C. 1977. CNS regulation of body temperature in euthermic and hibernating marmots (*Marmota flaviventris*). *Am. J. Physiol.* 232:R203-R208.
- Florant G. L., Hester L., Ameenuddin S. and Rintoul D. A. 1993. The effect of a low essential fatty acid diet on hibernation in marmots. *Am. J. Physiol.* 264:R747-R753.

- Florant G. L., Nuttle L., Mullinex D. E. and Rintoul D. A. 1990. Seasonal changes in the white adipose tissue of marmots. Am. J. Physiol. 258:R1123-R1131.
- Florant G., Rivera D. L., Lawrence A. K. and Tamarkin L. 1984. Plasma melatonin concentrations in hibernating marmots: absence of plasma melatonin rhythm. Am. J. Physiol. 247:R1062-R1066.
- Florant G. L., Tokuyama K. and Rintoul D. A. 1989. Carbohydrate and lipid utilization in hibernators. in: Malan A. and Canguilhem B. eds. Living in the Cold II. John Libbey, London. pp 137-144.
- Florant G. L., Turner B. M. and Heller H. C. 1978. Temperature regulation during wakefulness, sleep, and hibernation in marmots. Am. J. Physiol. 235:R82-R88.
- Fowler P. A. and Racey P. A. 1988. Overwintering strategies of the badger, *Meles meles*, at 57°N. J. Zool. Lond. 214:635-651.
- Francis A. J. P. and Coleman G. J. 1990. Ambient temperature cycles entrain the free-running circadian rhythms of the stripe-faced dunnart, *Sminthopsis macroura*. J. Comp. Physiol. A167:357-362.
- French A. R. 1976. Selection of high temperatures for hibernation by the pocket mouse, *Perognathus longimembris*: ecological advantages and energetic consequences. Ecology. 57:184-191.
- French A. R. 1982a. Effects of temperature on the duration of arousal episodes during hibernation. J. Appl. Physiol. 52:216-220.
- French A. R. 1982b. Intraspecific differences in the pattern of hibernation in the ground squirrel *Spermophilus veldingi*. J. Comp. Physiol. B148:83-91.
- French A. R. 1985. Allometries of the duration of torpid and euthermic intervals during mammalian hibernation: a test of the theory of metabolic control of the timing of changes in body temperature. J. Comp. Physiol. B156:13-19.
- French A. R. 1986. Patterns of thermoregulation during hibernation. in: Heller H. C., Musacchia X. J. and Wang I. C. H. eds. Living in the Cold. Elsevier, New York. pp 393-402.
- French A. R. 1989. The impact of variations in energy availability on the time spent torpid during the hibernation season. in: Malan A. and Canguilhem B. eds. Living in the Cold II. John Libbey, London. pp 129-136.
- Frey H. 1991. Energetic significance of torpor and other energy-conserving mechanisms in free-living *Sminthopsis crassicaudata* (Marsupialia: Dasyuridae). Aust. J. Zool. 39:589-708.
- Galster W. and Morrison P. R. 1975. Gluconeogenesis in arctic ground squirrels between periods of hibernation. Am. J. Physiol. 228:325-330.

- Geiser F. 1988a. Reduction of metabolic rate during hibernation and daily torpor in mammals and birds: temperature effect or physiological inhibition? *J. Comp. Physiol.* B158:25-37.
- Geiser F. 1988b. Daily torpor and thermoregulation in *Antechinus* (Marsupialia): influences of body mass, season, development, reproduction and sex. *Oecologia*. 77:395-399.
- Geiser F. 1993a. Hibernation in the eastern pygmy possum, *Cercartetus nanus* (Marsupialia: Burramyidae). *Aust. J. Zool.* 41:67-75.
- Geiser F. 1993b. Metabolic rate reduction during hibernation. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. *Life in the Cold: Ecological, Physiological, and Molecular Mechanisms*. Westview Press, Boulder. pp 549-552.
- Geiser F. 1994. Hibernation and daily torpor in marsupials: a review. *Aust. J. Zool.* 42:1-16.
- Geiser F. and Baudinette R. V. 1985. The influence of temperature and photophase on daily torpor in *Sminthopsis macroura* (Dasyuridae: Marsupialia). *J. Comp. Physiol.* B156:129-134.
- Geiser F. and Baudinette R. V. 1987. Seasonality of torpor and thermoregulation in three dasyurid marsupials. *J. Comp. Physiol.* B157:335-344.
- Geiser F., Baudinette R. V. and McMurchie E. J. 1989. The effect of temperature on isolated perfused hearts of heterothermic marsupials. *Comp. Biochem. Physiol.* 93A:331-335.
- Geiser F. and Baudinette R. V. 1990. The relationship between body mass and rate of rewarming from hibernation and daily torpor in mammals. *J. Exp. Biol.* 151:349-359.
- Geiser F. and Broome L. 1991. Hibernation in the mountain pygmy possum *Burramys parvus* (Marsupialia). *J. Zool. Lond.* 223:593-602.
- Geiser F., Hiebert S. and Kenagy G. J. 1990. Torpor bout duration during the hibernation season of two Sciurid Rodents: interrelations with temperature and metabolism. *Physiol. Zool.* 63:489-503.
- Geiser F. and Kenagy G. J. 1987. Polyunsaturated lipid diet lengthens torpor and reduced body temperature in a hibernator. *Am. J. Physiol.* 252:R897-R901.
- Geiser F. and Kenagy G. J. 1988. Torpor bout duration in relation to temperature and metabolism in hibernating ground squirrels. *Physiol. Zool.* 61:442-449.
- Geiser F. and McMurchie E. J. 1984. Differences in the thermotropic behaviour of mitochondrial membrane respiratory enzymes from homeothermic and heterothermic endotherms. *J. Comp. Physiol.* B157:125-133.

- Geiser F. and Ruf T. 1995. Hibernation versus daily torpor in mammals and birds: physiological variables and classification of torpor patterns. *Physiol. Zool.* 68:935-966.
- Geiser F., Song X. and Körtner G. 1996. The effect of He-O₂ exposure on metabolic rate, thermoregulation and thermal conductance during normothermia and daily torpor. *J. Comp. Physiol.* B166 190-196.
- Godfrey G. K. 1966. Daily torpor in the marsupial mouse, *Sminthopsis larapinta* (Spencer). *Nature* 212: 1248-1249.
- Godfrey G. K. 1968. Body-temperature and torpor in *Sminthopsis crassicaudata* and *S. laprinata* (Marsupialia: Dasyuridae). *J. Zool. Lond.* 156:499-511.
- Gordon C. J. 1985. Relationship between autonomic and behavioral thermoregulation in the mouse. *Physiol. Behav.* 34:687-690.
- Grahn D. A., Miller J. D., Houng V. S. and Heller H. C. 1994. Persistence of circadian rhythmicity in hibernating ground squirrels. *Am. J. Physiol.* 266:R1251-R1258.
- Grigg G. C., Augee M. L. and Beard L. A. 1992. Thermal relations of free-living echidnas during activity and hibernation in a cold climate. in: Augee M. L. ed. *Platypus and Echidnas*. Roy Zool. Soc. NSW, Sydney. pp 160-173.
- Grigg G. C. and Beard L. 1996. Heart rates and respiratory rates of free-ranging echidnas - evidence for metabolic inhibition during hibernation? in: Geiser F., Hulbert A. J. and Nicol S. C. eds. *Adaptations to the Cold: Tenth International Hibernation Symposium*. University of New England Press, Armidale, Australia. pp 13-21.
- Guard C. L. and Murrish D. E. 1975. Effects of temperature on the viscous behavior of blood from antarctic birds and mammals. *Comp. Biochem. Physiol.* 52A:287-290.
- Gumma M. R. and South F. E. 1957. Temperature preference in golden hamsters. *Anim. Behav.* 15:634-537.
- Gumma M. R. and South F. E. 1970. Hypothermia and behavioural thermoregulation by the hamster (*Mesocricetus auratus*). *Anim. Behav.* 18:504-511.
- Guppy M., Fuery C. J. and Flanigan J. E. 1994. Biochemical principles of metabolic depression. *Comp. Biochem. Physiol.* 109B:175-189.
- Haim A., Ellison G. T. H. and Skinner J. D. 1988. Thermoregulatory circadian rhythms in the pouched mouse (*Saccostomus campestris*). *Comp. Biochem. Physiol.* A91:123-127.
- Haim A. and Izhaki I. 1995. Comparative physiology of thermoregulation in rodents: adaptations to arid and mesic environments. *J. Arid Environ.* 31:431-440.
- Hainsworth F. R. 1981. *Animal Physiology: Adaptations in Function*. Addison-Wesley, Massachusetts.

- Hainsworth F. R. and Wolf L. L. 1970. Regulation of oxygen consumption and body temperature during torpor in a hummingbird, *Eulampis jugularis*. *Science* 168:368-369.
- Hammel H. T. 1955. Thermal properties of fur. *Am. J. Physiol.* 182:369-376.
- Hammel H. T. 1967. Temperature regulation and hibernation. in: Fisher K. S., Dawe A. R., Lyman C. P., Schörbaum E. and South F. E. eds. *Mammalian Hibernation III*. Oliver and Boyd, London. pp 86-96.
- Hammel H. T. 1968. Regulation of internal body temperature. *Ann. Rev. Physiol.* 30:641-710.
- Hammel H. T. 1986. Is heat production during arousal enhanced by a positive feedback? in: Heller H. C., Misacchia X. J. and Wang L. C. H. eds. *Living in the Cold*. Elsevier, New York. pp 201-205.
- Hammel H. T., Dawson T. J., Abrams R. M. and Andersen H. T. 1968. Total calorimetric measurements on *Citellus lateralis* in hibernation. *Physiol. Zool.* 41:347-357.
- Hammel H. T., Wyndham C. H. and Hardy J. D. 1958. Heat production and heat loss in the dog at 8 - 36°C environmental temperature. *Am. J. Physiol.* 194:99-109.
- Hand S. C. and Somero G. N. 1983. Phosphofructokinase of the hibernator *Citellus beecheyi*: temperature and pH regulation of active via influences on the tetramer-dimer equilibrium. *Physiol. Zool.* 56:380-388.
- Hanski I. 1984. What does a shrew do in an energy crisis? in: Sibly R. M. and Smith R. H. eds. *Behavioural Ecology*. Blackwell Scientific Publications, Oxford. pp 247-252.
- Harmata W. 1969. The thermopreferendum of some species of bats (Chiroptera). *Acta Theriologica* 14:49-62.
- Harlow H. J. 1981. Torpor and other physiological adaptations of the badger (*Taxidea taxus*) to cold environment. *Physiol. Zool.* 54:267-275.
- Harlow H. J. 1995. Fasting biochemistry of representative spontaneous and facultative hibernators. *Physiol. Zool.* 68:915-934.
- Hayssen V. and Lacy R. 1985. Basal metabolic rates in mammals: taxonomic differences in the allometry of BMR and body mass. *Comp. Biochem. Physiol.* 81A:741-754.
- Hayward J. S. 1971. Non-shivering thermogenesis in hibernating mammals. in: Janský L. ed. *Non-Shivering Thermogenesis*. Swets and Zeitlinger, Amsterdam. pp 119-134.
- Hayward J. S. and Lisson P. A. 1992. Evolution of brown fat: its absence in marsupials and monotremes. *Can. J. Zool.* 70:171-179.

- Heinrich B. and Bartholomew G. A 1971. An analysis of pre-flight warm-up in the sphinx moth, *Manduca sexta*. J. Exp. Biol. 55:223-239.
- Heldmaier G. 1978. Rewarming rates from torpor in mammals and birds. J. Therm. Biol. 3:100.
- Heldmaier G. 1989. Seasonal acclimatization of energy requirements in mammals: Functional significance of body weight control, hypothermia, torpor and hibernation. in: Weisinger W and Gnaiger E. eds. Energy Transformations in Cells and Organisms. Thieme Verlag, Stuttgart. pp 130-139.
- Heldmaier G., Boeckler H., Buchberger A., Klaus S., Puchalski W., Steinlechner S. and Wiesinger H. 1986. Seasonal variation of thermogenesis. in: Heller, H. C., Musacchia X. J. and Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 361-372.
- Heldmaier G., Klaus S., Wiesinger H., Friedrichs U. and Wenzel M. 1989. Cold acclimation and thermogenesis. in: Malan A. and Canguilhem B. eds. Living in the Cold II. John Libbey, London. pp 347-358.
- Heldmaier G., Klaus S. and Wiesinger H. 1990. Seasonal adaptation of thermoregulatory heat production in small mammals. in: Bligh J. and Voigt T. eds. Thermoreception and Temperature Regulation. Springer-Verlag, Berlin. pp 235-243.
- Heldmaier G. and Ruf T. 1992. Body temperature and metabolic rate during natural hypothermia in endotherms. J. Comp. Physiol. B162:696-706.
- Heldmaier G., Steiger R. and Ruf T. 1993. Suppression of metabolic rate in hibernation. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. Life in the Cold: Ecological, Physiological, and Molecular Mechanisms. Westview Press, Boulder. pp 545-548.
- Heldmaier G., Steinlechner S. and Rafael J. 1982. Nonshivering thermogenesis and cold resistance during seasonal acclimatization in the Djungarian hamster. J. Comp. Physiol. B149:1-9.
- Heller H. C. 1979. Hibernation: neural aspects. Ann. Rev. Physiol. 41:305-321.
- Heller H. C. 1988. Sleep and hypometabolism. Can. J. Zool. 66:61-69.
- Heller H. C. and Colliver G. W. 1974. CNS regulation of body temperature during hibernation. Am. J. Physiol. 227:583-589.
- Heller H. C. and Colliver G. W and Beard J. 1977. Thermoregulation during entrance into hibernation. Pfluegers Arch. 369:55-59.
- Heller H. C. and Hammel H. T. 1972. CNS control of body temperature during hibernation. Comp. Biochem. Physiol. 41A:349-359.
- Heller H. C., Waker J. M., Florant G. L. Glotzbach S. F. and Berger R. S. 1978. Sleep and hibernation: electrophysiological and thermoregulatory homeostases. in:

- Wang L. C. H. and Hudson J. W. eds. Strategies in Cold: Natural Torpidity and Thermogenesis. Academic Press, New York. pp 225-265.
- Henshaw R. E. 1968. Thermoregulation during hibernation: application of Newton's law of cooling. *J. Theoret. Biol.* 20:79-90.
- Henshaw R. E. 1986. Regulation of heat circulation to the feet of mammals in chronic cold. in: Heller H. C., Musacchia X. J. and Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 67-176
- Herreid C. F., and Kessel B. 1967 Thermal conductance in birds and mammals. *Comp. Biochem. Physiol.* 21:405-414. 1967.
- Hickman V. V. and Hickman J. L. 1960. Notes on the habits of the Tasmanian dormouse phalangers *Cercartetus nanus* (Desmarest) and *Eudromicia lepida* (Thomas). *Proc. Zool. Soc. London* 135:365-375.
- Hiebert S. M. 1990. Energy costs and temporal organization of torpor in the Rufous hummingbirds *Selasphorus rufi*s. *Physiol. Zool.* 63:1082-1097.
- Hill R. W. 1975. Daily torpor in *Pteromyscus leucopus* on an adequate diet. *Comp. Biochem. Physiol.* 51A:413-423.
- Hinds D. S., Baudinette R. V., MacMillen R. E. and Halpern E. A. 1993. Maximum metabolism and the aerobic factorial scope of endotherms. *J. Exp. Biol.* 182:41-56.
- Hinds D. S. and MacMillen R. E. 1984. Energy scaling in marsupials and eutherians. *Science* 255:335-337.
- Hinds D. S. and Rice-Warner C. N. 1992. Maximum metabolism and aerobic capacity in heteromyid and other rodents. *Physiol. Zool.* 65:188-214.
- Hislop M. S. and Buffenstein R. 1994. Noradrenaline induced nonshivering thermogenesis in both the naked mole-rat (*Heterocephalus glaber*) and the Damara mole-rat (*Cryptomys damarensis*) despite very different modes of thermoregulation. *J. Therm. Biol.* 19:25-32.
- Hock R. J. 1951. The metabolic rates and body temperatures of bats. *Biol. Bull.* 101:289-299.
- Hock R. J. 1960. Seasonal variations in physiological functions of arctic ground squirrels and black bears. *Bull. Mus. Comp. Zool.* 124:155-171.
- Hockachka P. W. and Guppy M. 1937. Metabolic arrest and the control of biological time. Harvard University Press, Cambridge.
- Hoffman R. A. 1964. Speculations on the regulation of hibernation. *Ann. Acad. Sci. Fenn. Ser.* 7:201-216.
- Holloway J. and Geiser F. 1995. Influence of torpor on daily energy expenditure of the dasyurid marsupial *Sminthopsis crassicaudata*. *Comp. Biochem. Physiol.* 112A:59-66.

- Horwitz B. A. 1989. Biochemical mechanisms and control of cold-induced cellular thermogenesis in placental mammals. in: Wang L. C. H. ed. Advances in Comparative and Environmental Physiology. Springer-Verlag, Berlin. pp 84-116.
- Huang C., Ward S. and Lee A. K. 1987. Comparison of the diets of the feathertail glider, *Acrobates pygmaeus*, and the eastern pygmy-possum, *Cercartetus nanus* (Marsupialia: Burramyidae) in sympatry. Aust. Mammal. 10:47-50.
- Hudson J. W. 1967. Variations in the patterns of torpidity of small homeotherms. in: Fisher K. S., Dawe A. R., Lyman C. P., Schönbaum E. and South F. E. eds. Mammalian Hibernation III. Oliver and Boyd, London. pp 30-46.
- Hudson J. W. 1973. Torpidity in mammals. in: Whittow G. C. ed. Comparative Physiology of Thermoregulation III. Academic Press, New York. pp 97-165.
- Hudson J. W. 1978. Shallow, daily torpor: a thermoregulatory adaptation. in: Wang L. C. H. ed. Strategies in Cold: Natural Torpidity and Thermogenesis. Academic Press, New York. pp 67-108.
- Hudson J. W. 1981. Role of the endocrine glands in hibernation with special reference to the thyroid gland. in: Musacchia X. J. and Janský L. eds. Survival in the Cold. Elsevier, New York. pp 33-54.
- Hudson J. W. and Bartholomew G. A. 1964. Terrestrial animals in dry heat: estivators. in: Dill D. B. ed. Adaptation to the Environment. Am. Physiol. Soc., Washington DC. pp 541-550.
- Hudson J. W. and Eller R. R. 1974. $\text{^{12}K}$ efflux, EKG and tension in isolated perfused hearts of white-footed mice. Comp. Biochem. Physiol. 49A:743-755.
- Hulbert A. J. 1980a. Evolution from ectothermia towards endothermia. in: Szelényi Z. and Székely M. eds. Satellite of 28. Int. Congress of Physiol. Sci., Pécs. pp 237-247.
- Hulbert A. J. 1980b. The evolution of energy metabolism in mammals. in: Schmidt-Nielsen K., Bolis L., and Taylor C. R. Comparative Physiology: Primitive Mammals. Cambridge University Press. pp 129-139.
- Hulbert A. J. 1987. Thyroid hormones, membranes and the evolution of endothermy. in: McLennan H., Ledsome R., McIntosh C. H. S. and Jones D. R. eds. Advances in Physiological Research. Plenum Publishing Corporation, New York. pp 305-319.
- Hulbert A. J. 1993. Membrane adaptations in ectotherms and endotherms. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. Life in the Cold: Ecological, Physiological, and Molecular Mechanisms. Westview Press, Boulder. pp 417-427.

- Hulbert A. J. and Else P. L. 1989. Evolution of mammalian endothermic metabolism: mitochondrial activity and cell composition. Am. J. Physiol. 256:R63-69.
- Hulbert A. J. and Else P. L. 1990. The cellular basis of endothermic metabolism: a role for "leaky" membranes? News in Physiol. Sci. 5:25-28.
- Hulbert A. J. and Hudson J. W. 1976. Thyroid function in a hibernator, *Spermophilus tridecemlineatus*. Am. J. Physiol. 230:1211-1216.
- Hyett J and Shaw N. 1980. Australian Mammals. Thomas Nelson Australia, Sydney.
- Irving L. 1964. Terrestrial animals in cold birds and mammals. in: Dill D. B. ed. Adaptation to the Environment. Am. Physiol. Soc., Washington DC. pp 361-376
- Irving L. 1972. Arctic Life of Birds and Mammals, Including Man. Springer-Verlag, New York.
- Irving L. and Krog J. 1955. Temperature of the skin in the arctic as a regulator of heat. J. Appl. Physiol. 7:355-364.
- Janský L. 1973. Non-shivering thermogenesis and its thermoregulatory significance. Biol. Rev. 48:85-132.
- Johansen K. 1962. Evolution of mammalian thermoregulation. in: Hannon J. P. and Viereck E. eds. Comparative Physiology of Temperature Regulation. Arctic Aeromedical Lab., Alaska.
- Johnson D. C. 1984. Seasonal adaptive coat changes in mammals. Acta. Zool. Fenn. 171:7-12.
- Jones C. and Geiser F. 1992. Prolonged and daily torpor in the feathertail glider, *Acrobates pygmaeus* (Marsupialia: Acrobatidae). J. Zool. Lond. 227:101-108.
- Kalabukhov N. Z. 1956. The Hibernation of Animals. Gorki State University Press, Gorki.
- Kayser C. 1953. L'hibernation des mammifères. Année. Biol. 29:109-150.
- Kayser C. 1961. The Physiology of Natural Hibernation. Pergamon, Oxford.
- Kayser C. 1964. La dépense d'énergie des mammifères en hibernation. Arch. Sci. Physiol. 18:137-150.
- Kenagy G. J. 1973. Daily and seasonal patterns of activity and energetics in a heteromyid rodent community. Ecology 54:1201-1219.
- Kenagy G. J. 1980. Interrelation of endogenous annual rhythms of reproduction and hibernation in golden-mantled ground squirrel. J. Comp. Physiol. B135:333-339.
- Kenagy G. J. 1986. Strategies and mechanisms for timing of reproduction and hibernation in ground squirrels. in: Heller, H. C., Musacchia X. J. and Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 383-392.

- Kenagy G. J. 1989. Daily and seasonal uses of energy stores in torpor and hibernation. in: Malan A. and Canguilhem B. eds. Living in the Cold II. John Libbey, London. pp 17-24.
- Kenagy G. J., Sharbaugh S. M. and Nagy K. A. 1989. Annual cycle of energy and time expenditure in a golden-mantled ground squirrel population. *Oecologia*. 78:269-282.
- Klaus S., Heldmaier G. and Ricquier D. 1988. Seasonal acclimation of bank voles and wood mice: nonshivering thermogenesis and thermogenic properties of brown adipose tissue mitochondria. *J. Comp. Physiol. B* 158:157-164.
- Klaus S., Casteilla L., Bouillaud F. and Ricquier D. 1991. The uncoupling protein UCP: a membraneous mitochondrial ion carrier exclusively expressed in brown adipose tissue. *Int. J. Biochem.* 23:791-801.
- Kleiber M. 1932. Body size and animal metabolism. *Hilgardia* 6:315-353.
- Kleiber M. 1961. The fire of Life. Wiley, New York.
- Körtner G. and Geiser F. 1995. Effect of photoperiod and ambient temperature on activity patterns and body weight cycles of mountain pygmy-possums, *Burramys parvus* (Marsupialia). *J. Zool. Lond.* 235:311-322.
- Körtner G. and Geiser F. 1996. Hibernation of mountain pygmy-possums (*Burramys parvus*) in the Australian alps. in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 31-38.
- Körtner G. and Heldmaier G. 1995. Body weight cycles and energy balance in the Alpine marmot (*Marmota marmota*). *Physiol. Zool.* 68:149-163.
- Kuhnen G., Petersen P. and Wünnenberg W. 1983. Hibernation in golden hamsters (*Mesocricetus auratus*, W.) exposed to 5% CO₂. *Experientia*. 39:1346-1347.
- Lasiewski R. C. and Lasiewski R. J. 1967. Physiological responses of the blue-throated and Rivili's hummingbirds. *The Auk* 94:34-48.
- Lechner A. J. 1978. The scaling of maximal oxygen consumption and pulmonary dimensions in small mammals. *Respir. Physiol.* 34:29-44.
- Lee A. K. and Cockburn A. 1985. Evolutionary Ecology of Marsupials. Cambridge Press, London.
- Lee A. K., Woolley P. and Braithwaite R. W. 1982. Life history strategies of dasyurid marsupials. in: Archer M. ed. Carnivorous Marsupials. Roy. Zool. Soc. NSW, Sydney. pp 1-11.
- Lindstedt S. L. and Calder W. A. 1981. Body size, physiological time and longevity of homeothermic animals. *Q. Rev. Biol.* 56:1-16.
- Louw G. N. 1993. Physiological Animal Ecology. Longman Science and Technical, London.

- Lovegrove B. G. 1986. The metabolism of social subterranean rodents: adaptation to aridity. *Oecologia* 69:551-555
- Lovegrove B. G. 1996. The low basal metabolic rates of marsupials: the influence of torpor and zoogeography. in: Geiser F., Hulbert A. J. and Nicol S. C. eds. *Adaptations to the Cold: Tenth International Hibernation Symposium*. University of New England Press, Armidale, Australia. pp 141-151.
- Lovegrove B. G., Heldmaier G. and Knight M. 1991. Seasonal and circadian energetic patterns in an arboreal rodent, *Thallomys paedulcus*, and a burrow-dwelling rodent, *Aethomys namaquensis*, from the Lahari desert. *J. Therm. Biol.* 16:199-209.
- Lyman C. P. 1964. The effect of low temperature on the isolated hearts of *Citellus leucurus* and *C. mohavensis*. *J. Mammal.* 45:122-126.
- Lyman C. P. 1982a. The hibernation state. in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 54-76.
- Lyman C. P. 1982b. Sensitivity to arousal. in Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 77-91.
- Lyman C. P. 1982c. Who is who among the hibernators. in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 12-36.
- Lyman C. P. 1982d. Why bother to hibernate? in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 1-11.
- Lyman C. P. 1982e. Mechanisms of arousal. in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 104-123.
- Lyman C. P. and O'Brien R. C. 1986. Is brown fat necessary? in: Heller, H. C., Musacchia X. J. and Wang L. C. H. eds. *Living in the Cold*. Elsevier, New York. pp 109-116.
- Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. 1982. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York.
- MacMillen R. E. and Christopher E. A. 1975. in: Hadley N. F. ed. *Environmental Physiology of Desert Organisms*. Dowden, Hutchison and Ross, Stroudsburg. pp 117-137.
- MacMillen R. E. and Nelson J. E. 1969. Bioenergetics and body size in dasyurid marsupials. *Am. J. Physiol.* 217:1246-1251.

- Madison D. M. 1984. Group nesting and its ecological and evolutionary significance in over-wintering microtine rodents. in: Merritt J. F. ed. Winter Ecology of Small Mammals. Spec. Publ. Carnegie Mus. Hist., Pittsburgh. pp 267-274.
- Malan A. 1983. Adaptation to poikilothermy in endotherms. *J. Thermal. Biol.* 8:79-84.
- Malan A. 1986. pH as a control factor in hibernation. in: Heller H. C., Musacchia X. J. and Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 61-70.
- Malan A. 1988. pH and hypometabolism in mammalian hibernation. *Can. J. Zool.* 66:95-98.
- Malan A. 1993. Temperature regulation, enzyme kinetics, and metabolic depression in mammalian hibernation. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. Life in the Cold: Ecological, Physiological, and Molecular Mechanisms. Westview Press, Boulder. pp 241-251.
- Malan A. 1996. The origins of hibernation: a reappraisal. in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 1-6.
- Malan A., Mioskowski E., Calgari C. 1988. Time-course of blood acid-base state during arousal from hibernation in the European hamster. *J. Comp. Physiol.* B158:495-500.
- Martin C. J. 1902. Thermal adjustment and respiratory exchange in monotremes and marsupials. *Phil. Trans. R. Soc.* B195:1-37.
- Martin S. L., Srere H. K., Belke D. Wang L. C. H. and Carey H. V. 1993. Differential gene expression in the liver during hibernation in ground squirrels. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. Life in the Cold: Ecological, Physiological and Molecular Mechanisms. Westview Press, Boulder. pp 443-453.
- May E. L. 1993. Application of the piezoelectric technique to measure shivering tremor and the response to cold acclimation in the kowari. Abstracts of The Tenth Meeting of Australian Comparative Physiologists. University of Tasmania, Hobart.
- McKenna M. C. 1969. The origin and early differentiation of therian mammals. *Ann. N. Y. Acad. Sci.* 167:217-240.
- McNab B. K. 1971. On the ecological significance of Bergmann's rule. *Ecology*. 52:845-854.
- McNab B. K. 1978. The comparative energetics of neotropical marsupials. *J. Comp. Physiol.* 125:115-128.
- McNab B. K. 1980. On estimating thermal conductance in endotherms. *Physiol. Zool.* 53:145-156.

- McNab B. K. 1983. Energetics, body size, and the limits to endothermy. *J. Zool. Lond.* 199:1-29.
- McNab B. K. 1986. Food habits, energetics, and the reproduction of marsupials. *J. Zool. Lond.* 208:595-614.
- McNab B. K. 1988. Complications inherent in scaling the basal rate of metabolism in mammals. *Quart. Rev. Biol.* 63:25-54.
- McNab B. K. and Morrison P. 1963. Body temperature and metabolism in subspecies of *Peromyscus* from arid and mesic environments. *Ecol. Monogr.* 33:63-82.
- Merritt J. F. 1986. Winter survival adaptations of the short-tailed shrew (*Blarina brevicauda*) in an Appalachian montane forest. *J. Mammal.* 67:450-464.
- Merritt J. F. 1995. Seasonal thermogenesis and changes in body mass of masked shrews, *Sorex cinereus*. *J. Mammal.* 76:1020-1035.
- Milsom W. K. 1993. Metabolic depression during hibernation: the role of respiratory acidosis. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. *Life in the Cold: Ecological, Physiological, and Molecular Mechanisms*. Westview Press, Boulder. pp 541-544.
- Morhardt J. E. and Hudson J. W. 1966. Daily torpor induced in white-footed mice (*Peromyscus* spp.) by starvation. *Nature* 212:1046-1047.
- Morrison P. R. 1962. Body temperature in some Australian mammals. II. Peramelidae. *Aust. J. Biol. Sci.* 15:386-394.
- Morrison P. R. 1965. Body temperatures in some Australian mammals. IV. Dasyuridae. *Aust. J. Zool.* 13:173-187.
- Morrison P. R. 1993. Acidosis, Q₁₀, and metabolic depression: causation or epiphenomenon in mammalian hibernation? in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. *Life in the Cold: Ecological, Physiological, and Molecular Mechanisms*. Westview Press, Boulder. pp 539-540.
- Morrison P. R. and McNab B. K. 1962. Daily torpor in a Brazilian murian opossum (*Marmosa*). *Comp. Biochem. Physiol.* 6:57-68.
- Morrison P., Ryser F. A. and Dawe A. R. 1959. Studies on the physiology of the masked shrew *Sorex cinereus*. *Physiol. Zool.* 32:256-271.
- Morrison P. and Ryser F. A. 1962. Metabolism and body temperature in a small hibernator, the meadow jumping mouse, *Zapus hudsonicus*. *J. Cell Comp. Physiol.* 60:169-180.
- Morrison P. R. and Warman N. A. 1967. Thermal gradient chamber for small animals. *Med. Biol. Engr.* 5:41-45.
- Morton S. R. 1982. Dasyurid marsupials of the Australian arid zone: an ecological review. In: Archer, M. ed. *Carnivorous Marsupials*. Sydney: Roy. Zool. Soc. NSW. pp 117-130.

- Morton S. R. 1983. Stripe-faced dunnart, *Sminthopsis macroura*. in: Strahan R. ed. Complete Book of Australian Mammals. Angus and Robertson, Sydney. pp 63-64.
- Morton S. R., Denny M. J. S. and Read D. G. 1983. Habitat preferences and diets of sympatric *Sminthopsis crassicaudata* and *S. macroura* (Marsupialia: Dasyuridae). Aust. Mammal. 6: 29-34.
- Morton S. R. and Lee A. K. 1978. Thermoregulation and metabolism in *Planigale maculata* (Marsupialia: Dasyuridae). J. Therm. Biol. 3:117-120.
- Mrosovsky N. 1971. Hibernation and the Hypothalamus. Meredith, New York.
- Mrosovsky N. 1978. Circannual cycles in hibernators. in: Wang L. C. H. and Hudson J. W. eds. Strategies in Cold: Natural Torpidity and Thermogenesis. Academic Press, New York. pp 21-65.
- Mrosovsky N. 1986. Thermal effects on the periodicity, phasing and persistence of circannual circle. in: Heller H. C., Musacchia X. C. Wang L. C. H. eds. Living in the Cold. Elsevier, New York. pp 403-410.
- Mrosovsky N. 1990. Rheostasis: The Physiology of Change. Oxford University Press, New York.
- Murie J. O. and Boag D. A. 1984. The relationship of body weight to overwinter survival in Columbian ground squirrels. J. Mammal. 65:688-690.
- Nagel A. 1985. Sauerstoffverbrauch, Temperaturregulation und Herzfrequenz bei europäischen Spitzmäusen (Soricidae). Z. Säugetierkunde 50:249-266.
- Nagel and Nagel 1991. How do bats choose optimal temperatures for hibernation? Comp. Biochem. Physiol. 99A: 323-326.
- Nedergaard J. Cannon B. 1984. Preferential utilization of brown adipose tissue lipids during arousal from hibernation in hamsters. Am. J. Physiol. 247:R506-R512.
- Néchad M. 1986. Structure and development of brown adipose tissue. in: Trayhurn P. and Nicholls D. G. eds. Brown Adipose Tissue. Edward Arnold, London. pp 1-30.
- Nestler J. R. 1990. Relationships between respiratory quotient and metabolic rate during entry to and arousal from daily torpor in deer mice (*Peromyscus maniculatus*). Physiol. Zool. 63:504-515.
- Nestler J. R., Peterson S. J., Smith E. D., Heathcock R. B., Johanson C. R., Sarthou J. C. and King J. C. 1997. Glycolytic enzyme binding during entry to daily torpor in deer mice (*Peromyscus maniculatus*). Physiol. Zool. 70:61-67.
- Nicholls D. G., Cunningham S. and Rial E. 1986. The bioenergetic mechanisms of brown adipose tissue. in: Trayhurn P and Nicholls D. G. eds. Brown Adipose Tissue. Arnold, London. pp 52-85.

- Nicol S., Andersen N. A. and Mescl U, 1992. Metabolic rate and ventilation pattern in the echidna during hibernation and arousal. in: Augee M. L. ed. Platypus and Echidnas. Roy. Zool. Soc. NSW, Sydney. pp 150-159.
- Nicol S. and Andersen N. A. 1996. Hibernation in the echidna: not a adaptation to cold? in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 7-12.
- O'Reilly H. M., Armstrong S. M. and Coleman G. J. 1984. Response to variations in lighting schedules on the circadian activity rhythms of *Sminthopsis macroura* frogatti (Marsupialia: Dasyuridae). Aust Mammal. 7:89-99.
- Ortmann S., Heldmaier G., Schmid J. and Ganzhorn J. U. 1997. Spontaneous daily torpor in Malagasy mouse lemur. Naturwissenschaften. 84:28-32.
- Pehowich D. J., Macdonald P. M., McElhaney R. N., Cossins A. R. and Wang L. C. H. 1988. Calorimetric and spectroscopic studies of lipid thermotropic phase behavior in liver inner mitochondrial membranes from a mammalian hibernator. Biochem. 27:4632-4638.
- Pengelly E. T., Aloia R. C. and Barnes B. M. 1978. Circannual rhythmicity in the hibernating ground squirrel (*Citellus lateralis*) under constant light and hyperthermic ambient temperature. Comp. Biochem. Physiol. 61A:599-603.
- Pengelly E. T., Asmundson S. J. and Ulhman C. 1971. Homeostasis during hibernation in the golden-mantled ground squirrel, *Citellus lateralis*. Comp. Biochem. Physiol. 38A:645-650.
- Pengelly E. T. and Kelley K. H. 1966. A circadian rhythm in hibernating species of the genus *Citellus* with observations on their physiological evolution. Comp. Biochem. Physiol. 19:603-617.
- Pivorun E. B. 1986. Hypothalamic thermosensitivity in hibernating chipmunks, *Tamias striatus*. Physiol. Zool. 59:194-200.
- Prothero J. and Jürgens K. D. 1986. An energetic model of torpor in endotherms. J. Thero. Biol. 121:403-415.
- Racey P. A. 1973. Environmental factors affecting the length of gestation in heterothermic bats. J. Reprod. Fert. Suppl. 19:175-189.
- Raison J. K. and Lyons J. M. 1971. Hibernation: alteration of mitochondrial membranes as a requisite for metabolism at low temperature. Proc. Nat. Acad. Sci. 68:2092-2094.
- Raison J. K., Augee, M. L. and Aloia R. C. 1988. Mitochondrial membrane transitions in heart and other organs of a hibernator. Am. J. Physiol. 254:E378-E383.

- Reynolds W. and Hulbert A. J. 1982. Cold acclimation in a small dasyurid marsupial: *Antechinus stuartii*. in: Archer M. ed. Carnivorous Marsupials. Roy. Zool. Soc. NSW, Sydney. pp 279-283.
- Roberts J. C. and Smith R. E. 1967. Effect of temperature on metabolic rates of liver and brown fat homogenates. Can. J. Biochem. 45:1763-1771.
- Rosenmann M. and Morrison P. 1974. Maximum oxygen consumption and heat loss facilitation in small homeotherms by He-O₂. Am. J. Physiol. 226:490-495.
- Rosenmann M. and Ampuero R. 1981. Hibernación en *Dromiciops australis*. Archivos de Biología y Medicina Experimental (Chile). 14:R294.
- Rothwell N. J. and Stock M. J. 1976. A role of brown adipose tissue in diet induced thermogenesis. Nature 281:31-35.
- Rothwell N. J. and Stock M. J. 1986. Spontaneous and experimental variations in body weight, food intake and metabolic rate in captive dormice (*Glis glis*). Comp. Biochem. Physiol. 84A:141-147.
- Ruben J. A. 1995. The evolution of endothermy in mammals and birds: from physiology to fossils. Ann. Rev. Physiol. 57:69-76.
- Ruf T. 1993. Cold exposure and food restriction facilitate physiological responses to short photoperiod in Djungarian hamsters (*Phodopus sungorus*). J. Exp. Zool. 267:104-112.
- Ruf T. and Heldmaier G. 1992. The impact of daily torpor on energy requirements in the Djungarian hamster, *Phodopus sungorus*. Physiol. Zool. 65:994-1010.
- Ruf T., Klingenspor M., Preis H. and Heldmaier G. 1991. Daily torpor in the Djungarian hamster (*Phodopus sungorus*): interactions with food intake, activity, and social behaviour. Comp. Physiol. B160:609-615.
- Ruf T., Steinlechner S. and Heldmaier G. 1989. Rhythmicity of body temperature and torpor in the Djungarian hamsters, *Phodopus sungorus*. in: Malan A. and Canguilhem B. eds. Living in the Cold II. John Libbey, London. pp 53-61.
- Schmid J. 1996. Oxygen consumption and torpor in mouse lemurs (*Microcebus murinus* and *M. myoxinus*): Preliminary results of a study in western Madagascar. in: Geiser F., Hulbert A. J. and Nicol S. C. eds. Adaptations to the Cold: Tenth International Hibernation Symposium. University of New England Press, Armidale, Australia. pp 17-54.
- Schmidt I. 1984. Interaction of behavioural and autonomic thermoregulation. in: Thermal Biology. Raven Press. New York. pp 309-318.
- Schmidt-Nielsen K. 1964. Terrestrial animals in dry heat: desert rodents. in: Dill D. B. ed. Adaptation to the Environment. Am. Physiol. Soc., Washington DC. pp 493-507.

- Schmidt-Nielsen K. 1984. Scaling: why is animal size so important? Cambridge University Press, New York.
- Schmidt-Nielsen K. 1990. Animal Physiology: Adaptation and Environment. Cambridge University Press, Cambridge.
- Scholander P. F., Hock R., Walters V. and Irving L. 1950a. Adaptation to cold in arctic and tropical mammals and birds in relation to body temperature, insulation and basal metabolic rate. Biol. Bull. 99:259-271.
- Scholander P. F., Walters V., Hock R. and Irving L. 1950b. Body insulation of some arctic and tropical mammals and birds. Biol. Bull. 99:225-236.
- Seely M. K., Mitchell D. and Goelst K. 1990. Boundary layer microclimate and *Angolosaurus skoogi* (Sauria: Cordylidae) activity on a northern Namib dune. Transvaal Museum Monograph. 7:155-62.
- Serenty V. and Raymond R. 1973. Torpidity in desert mammals. Australia's Wildlife Heritage 14:2233-2240.
- Sheafor B. A. and Snyder G. K. 1996. Energy partitioning in torpor-sensitive and torpor-resistant deer mice (*Peromyscus maniculatus*). Can. J. Zool. 74:1179-1186.
- Smith B. K. and Dawson T. J. 1985. Use of helium-oxygen to examine the effect of cold acclimation on the sum mit metabolism of a marsupial, *Dasyuroides byrnei*. Comp. Biochem. Physiol. 81A:445-449.
- Smith R. E. and Horwitz B. A. 1969. Brown fat and thermogenesis. Physiol. Rev. 49:330-425.
- Snapp B. D. and Heller H. C. 1981. Suppression of metabolism during hibernation in ground squirrels (*Citellus lateralis*). Physiol. Zool. 54:297-307.
- Snyder G. K. and Nestler J. R. 1990. Relationship between body temperature, thermal conductance, Q₁₀ and energy metabolism during daily torpor and hibernation in rodents. J. Comp. Physiol. B159:667-675.
- Soivio A., Tähti H. and Kristoffersson R. 1968. Studies on the periodicity of hibernation in the hedgehog (*Erinaceus europaeus* L.) Ann. Zool. Fenn. 5:224-226.
- Song X. and Geiser F. 1997. Daily torpor and energy expenditure in *Sminthopsis macroura*: Interactions between food and water availability and temperature. Physiol. Zool. 70: (in press).
- Song X. and Zeng J. 1991. Seasonal variation in energy metabolism of the ground squirrel (*Citellus dauricus*). Acta. Theriol. Sinica 11:48-55.
- South F. E., Miller V. M. and Harter W. C. 1978. Neuronal models of temperature regulation in euthermic and hibernating mammals: an alternate model for

- hibernation. in: Wang L. C. H., Hudson J. W. eds. Strategies in Cold: Natural Torpidity and Thermogenesis. Academic Press, New York. pp 187-224.
- Srere H. K., Wang L. C. H. and Martin S. L. 1992. Central role for differential gene expression in mammalian hibernation. Proc. Nat. Acad. Sci. USA. 89:7119-7123.
- Srere H. K., Belke D., Wang L. C. H. and Martin S. L. 1995. α_2 -Macroglobulin gene expression during hibernation in ground squirrels is independent of acute phase response. Am. J. Physiol. 268:R1507-R1512.
- Stevenson R. D. 1986. Allen's rule in North American rabbits (*Sylvilagus*) and hares (*Lepus*) is an exception, not a rule. J. Mammal. 67:312-316.
- Stinson R. H. and Fisher K. C. 1953. Temperature selection in deer mice. Can J. Zool. 31:404-416.
- Storey K. B. and Storey J. M. 1990. Metabolic rate depression and biochemical adaptation in anaerobiosis, hibernation and estivation. Q. Rev. Biol. 65:145-174.
- Strahan R. 1993. Complete Book of Australian Mammals. Angus and Robertson, Sydney.
- Strumwasser F. 1960. Some physiological principles governing hibernation in *Citellus beecheyi*. Bull. Mus. Comp. Zool. 124:285-320.
- Strumwasser F., Schlechte F. R. and Streeter J. 1967. The internal rhythms of hibernators. in: Fisher K. S., Dawe A. R., Lyman C. P., Schönbaum E. and South F. E. eds. Mammalian Hibernation III. Oliver and Boyd, London. pp 110-139.
- Studier E. H. 1981. Energetic advantages of slight drops in body temperature in little brown bats, *Myotis lucifugus*. Comp. Biochem. Physio. 70A:537-540.
- Sutherland A. 1897. The temperatures of reptiles, monotremes and marsupials. Proc. R. Soc. Vict. 9:57-67.
- Tähti H. 1978. Seasonal differences in O₂ consumption and respiratory quotient in a hibernator (*Erinaceus europaeus* L.). Ann. Zool. Fenn. 15:69-75.
- Tannenbaum M. G. and Pivorun F. B. 1988. Seasonal study of daily torpor in southeastern *Peromyscus maniculatus* and *Peromyscus leucopus* from mountains and foothills. Physiol. Zool. 61:10-16.
- Thompson S. D. 1985. Subspecific differences in metabolism, thermoregulation, and torpor in the western harvest mouse *Reithrodontomys megalotis*. Physiol. Zool. 58:430-444.
- Trachsel L., Edgar D. M. and Heller H. C. 1991. Are ground squirrels sleep deprived during hibernation? Am. J. Physiol. 260:R1123-R1129.

- Tucker V. A. 1965. Oxygen consumption, thermal conductance, and torpor in the California pocket mouse *Perognathus californicus*. *J. Cell Physiol.* 65:393-404.
- Tucker V. A. 1966. Diurnal torpor and its relation to food consumption and weight changes in the California pocket mouse *Perognathus californicus*. *Ecology* 47:245-252.
- Turner V. 1984. Banksia pollen as a source of protein in the diet of two Australian marsupials *Cercartetus nanus* and *Tarsipes rostratus*. *Oikos* 43:53-61.
- Turner V. and Ward S. J. 1983. Eastern pygmy-possum, *Cercartetus nanus*. in: Strahan R. ed. Complete Book of Australian Mammals. Angus and Robertson, Sydney. pp
- Twente J. W. 1955. Some aspects of habitat selection and other behaviour of cavern-dwelling bats. *Ecology* 36:706-732.
- Twente J. W. and Twente J. A. 1954. An hypothesis concerning the evolution of heterothermy in bats. *Ann. Acad. Sci. Fenn. Biol.* 4:434-442.
- Twente J. W. and Twente J. A. 1965. Regulation of hibernating periods by temperature. *Proc. Nat. Acad. Sci.* 54:1058-1061.
- Twente J. W. and Twente J. A. 1967. Seasonal variation in the hibernating behaviour of *Citellus lateralis*. in: Fisher K. C., Dawe A. R., Lyman C. P., Schönbaum F. and South F. E. eds. Mammalian Hibernation III. Oliver and Boyd, London. pp 47-63.
- Twente J. W. and Twente J. A. 1987. Biological alarm clock arouses hibernating big brown bat, *Eptesicus fuscus*. *Can. J. Zool.* 65:1668-1674.
- Twente J. W., Twente J. A. and Moy R. M. 1977. Regulation of arousal from hibernation by temperature in three species of *Citellus*. *J. Appl. Physiol: Resp. Environ. Exercise Physiol.* 42:191-195.
- Unwin D. M. 1980. Microclimate measurement for ecologists. Academic Press, New York.
- Vogel P. 1976. Energy consumption of European and African shrews. *Acta Theriologica* 21:196-206.
- Vogt D. F. and Lynch R. G. 1982. Influence of ambient temperature, nest availability, huddling, and daily torpor on energy expenditure in the white-footed mouse *Peromyscus leucopus*. *Physiol. Zool.* 56:56-63.
- Wakefield N. A. 1970. Notes on Australian pygmy-possums (*Cercartetus Phalangeridae*, Marsupialia). *Vic. Nat.* 87:11-17.
- Walker J. M. and Berger R. J. 1980. Sleep as an adaptation for energy conservation functionally related to hibernation and shallow torpor. *Prog. Brain. Res.* 53:255-278.

- Wallis R. L. 1979. Responses to low temperature in small marsupial mammals. *J. Therm. Biol.* 4:105-111.
- Wallis R. L. 1982. Adaptation to low environmental temperatures in the carnivorous marsupials. in: Archer M. ed. *Carnivorous Marsupials*. Roy. Zool. Soc. NSW, Sydney. pp 285-291.
- Walsberg G. E., Campbell G. S., and King J. R. 1978. Animal coat color and radiative heat gain: a reevaluation. *J. Comp. Physiol.* 126:221-232.
- Walton J. B. and Andrews J. F. 1981. Torpor induced by food deprivation in the wood mouse, *Apodemus sylvaticus*. *J. Zool.* 194:260-263.
- Wang L. C. H. 1978. Energetic and field aspects of mammalian torpor: the Richardson's ground squirrel. in: Wang L. C. H., Hudson J. W. eds. *Strategies in Cold: Natural Torpidity and Thermogenesis*. Academic Press, New York. pp 109-145.
- Wang L. C. H. 1979. Time patterns and metabolic rates of natural torpor in the Richardson's ground squirrel. *Can. J. Zool.* 57:149-155.
- Wang L. C. H. 1987. Mammalian hibernation. in: Morris G. J. and Grout B. eds. *The Effect of Low Temperatures on Biological Systems*. Edward Arnold, London. pp 349-386.
- Wang L. C. H. 1989. Ecological, physiological, and biochemical aspects of torpor in mammals and birds. in: Wang L. C. H. ed. *Advances in Comparative and Environmental Physiology*. Springer-Verlag, Berlin. pp 361-401.
- Wang L. C. H. and Abbotts B. 1981. Maximum thermogenesis in hibernators: magnitudes and seasonal variations. in: Musacchia X. J. and Janský L. eds. *Survival in the Cold*. Elsevier, New York. pp 77-97.
- Wang L. C. H. and Hudson J. W. 1970. Some physiological aspects of temperature regulation in the normothermic and torpid hispid pocket mouse, *Perognathus hispidus*. *Comp. Biochem. Physiol.* 32:275-293.
- Wang L. C. H. and Hudson J. W. 1971. Temperature regulation in normothermic and hibernating eastern chipmunk, *Tamias striatus*.
- Ward S. J. 1990. Life history of the eastern pygmy-possum, *Cercartetus nanus* (Burramyidae: Marsupialia), in South-eastern Australia. *Aust. J. Zool.* 38:287-304.
- Webb P. I. and Skinner J. D. 1996. Summer torpor in African woodland dormice *Graphiurus murinus* (Myodidae: Graphiurinae). *J. Comp. Physiol. B* 166:325-330.
- Whitney P. 1976. Population ecology of two symmetric species of subarctic microtine rodents. *Ecol. Monogr.* 46:85-104.

- Willis J. S. 1982a. The mystery of the periodic arousal. in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 92-103.
- Willis J. S. 1982b. Intermediary metabolism in hibernation. in: Lyman C. P., Willis J. S., Malan A. and Wang L. C. H. eds. *Hibernation and Torpor in Mammals and Birds*. Academic Press, New York. pp 124-139.
- Willis J. S., Ellory J. C. and Cossins A. R. 1981. Membranes of mammalian hibernators at low temperature. in: Morris G. J. and Clarke A. eds. *Effects of Low Temperatures on Biological Membranes*. Academic Press, New York. pp 121-142.
- Willis J. S., Goldman S. S. and Foster R. F. 1971. Tissue K concentration in relation to the role of the kidney in hibernation and the cause of periodic arousals. *Comp. Biochem. Physiol.* 39A:37-445.
- Withers P. C. 1977. Measurement of $\dot{V}O_2$, $\dot{V}CO_2$, and Evaporative water loss with a flow-through mask. *J. Appl. Physiol.* 42:120-123.
- Withers P. C. 1992. Comparative Animal Physiology. Saunders College, Fort Worth.
- Wolf L. L. and Hainsworth F. R. 1972. Environmental influence on regulated body temperature in torpid hummingbirds. *Comp. Biochem. Physiol.* 41A:167-173.
- Wood-Jones F. 1923. The Mammals of South Australia (Parts 1-3). Government Printer, Adelaide.
- Woolley P. A. 1982. Laboratory maintenance of dasyurid marsupials. in: Evans D. D. ed. *The Management of Australian Mammals in Captivity*. Zoological Board of Victoria, Melbourne. pp 13-21.
- Woolley P. A. 1990. Reproduction in *Sminthopsis macroura* (Marsupialia: Dasyuridae). *Aust. J. Zool.* 38:187-217.
- Wunder B. A. 1984. Strategies from, and environmental cueing mechanisms of, seasonal changes in thermoregulatory parameters of small mammals. in: Merritt J. F. ed. *Winter Ecology of Small Mammals*. Carnegie Mus. Nat. Hist. Spec, Pittsburgh. pp 165-172.
- Wunder B. A. 1985. Energetics and thermoregulation. in: Tamarin R. H. ed. *Biology of New World *Microtus**. Special Publication 8, Am. Soc. Zool. pp 812-844.
- Wünnenberg W. and Baltruschat D. 1982. Temperature regulation of golden hamsters during acute hypercapnia. *J. Therm. Biol.* 7:83-86.
- Wünnenberg W., Kuhnen G. and Laschefske-Sievers R. 1986. CNS regulation of body temperature in hibernators and non-hibernators. in: Heller H. C., Musacchia X. C. Wang L. C. H. eds. *Living in the Cold*. Elsevier, New York. pp 185-192.

- Yeager D. P. and Ultsch G. R. 1989. Physiological regulation and conformation: a BASIC program for the determination of critical points. *Physiol. Zool.* 62:888-907.
- Zar J. H. 1984. Biostatistical analysis. Prentice-Hall, Englewood Cliffs.
- Zucker I., Boshes M. and Dark J. 1983. The suprachiasmatic nucleus influence circannual and circadian rhythms of ground squirrels. *Am. J. Physiol.* 244:R472-R480.
- Zucker I., Norman F., Ruby F. and Dark J. 1993. The suprachiasmatic nucleus demiates rhythms of hibernation and daily torpor in rodents. in: Carey C., Florant G. L., Wunder B. A. and Horwitz B. eds. *Life in the Cold: Ecological, Physiological, and Molecular Mechanisms*. Westview Press, Boulder. pp 277-289.

Publications Resulting from This Work

Reviewed Journal Articles and Full Conference Papers

- Song X., Körtner G. and Geiser F. 1995. Reduction of metabolic rate and thermoregulation during daily torpor. *Journal of Comparative Physiology B* 165: 291-297.
- Song X., Körtner G. and Geiser F. 1996. Interrelations between metabolic rate and body temperature during entry into daily torpor in *Sminthopsis macroura*. In: Geiser F., Hulbert A. J. and Nicol S. C. eds. *Adaptation to the Cold: Tenth International Hibernation Symposium*. University of New England Press. Armidale. pp 63-69.
- Song X. and Geiser F. 1997. Daily torpor and energy expenditure in *Sminthopsis macroura*: Interrelations between food and water availability and temperature. *Physiological Zoology*. 70: in press.
- Song X., Körtner G. and Geiser F. 1997. Thermal relations of metabolic rate reduction in a hibernating marsupial. *American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*. In review.
- Song X., Körtner G. and Geiser F. 1997. Temperature selection and daily torpor in the marsupial, *Sminthopsis macroura*. *Physiology & Behavior*. In review.

Conference Abstracts

- Song X. and Geiser F. 1993. Effect of food and water availability on activity patterns, temperature selection, and daily torpor. Tenth Meeting of Australian Comparative Physiologists. Hobart. Abstract p 62.
- Song X., Körtner G. and Geiser F. 1994. Thermoregulation and reduction of metabolism during daily torpor in *Sminthopsis macroura*. Eleventh Meeting of Australian & New Zealand Comparative Physiologists. Brisbane. Abstract p 28.
- Song X. and Geiser F. 1995. Energy expenditure and torpor of *Sminthopsis macroura*: Effect of food availability and temperature. Annual & Scientific Meeting of Australian Mammal Society. Townsville. Abstract p 7.
- Song X., Körtner G. and Geiser F. 1995. Entry into daily torpor: time course of metabolic rate and body temperature reduction. Twelfth Annual & Scientific Meeting of Australian and New Zealand Society for Comparative Physiology and Biochemistry. Christchurch, New Zealand. Abstract p 28.

Song X., Körtner G. and Geiser F. 1996. Interrelations between metabolic rate and body temperature during entry into daily torpor in *Sminthopsis macroura*. Tenth International Hibernation Symposium. Cradle Mountain, Tasmania. Abstract p 82.

Other Related Publications

Song X., Zhang X. and Zeng J. 1993. Induction of summer hibernation in the ground squirrel (*Citellus dauricus*). Sixth International Theriological Congress, Sydney. Abstract p 290.

Geiser F., Song X. and Körtner G. 1996. The effect of He-O₂ exposure on metabolic rate, thermoregulation and thermal conductance during normothermia and daily torpor. Journal of Comparative Physiology B 166: 190-196.

Geiser F., Song X. and Körtner G. 1996. Thermal conductance does not explain the low metabolic rates during torpor. Tenth International Hibernation Symposium. Tasmania. Abstract p 60.