

## CHAPTER 6 REFERENCES CITED

- Agrell, I. P. S., and A. M. Lundquist. 1973. Physiological and biochemical changes during insect development. *In* The physiology of insecta. Rockstein, M. (ed.) vol. 1 Academic Press. New York.
- Allais, J. P., J. Bergerard, J. Etienne, and J. Polonovski. 1964 Nature et évolution des lipides au cours de l'embryogénèse de *Locusta migratoria migratorioides* L. *J. Insect Physiol.* 10: 753.
- Alexander, B. 1991. A cladistic analysis of the genus *Apis*. *In*: Diversity in the genus *Apis*. Smith, D. R. (ed.) Westview Press, Boulder.
- Alexandrov, V. Y. 1977. Cells, molecules and temperature. Springer, Berlin, Heidelberg New York.
- Anderson, D. T. 1972. The development of holometabolous insects. *In*: Developmental systems: insects. Academic Press Inc., New York, vol. 2:166-167.
- Avelar, T. 1993. Egg size in *Drosophila*: Standard unit of investment or variable response to environment? The effect of temperature. *J. Insect Physiol.* 39: 283-289.
- Bast, R. E., and W. H. Tefler. 1976. Follicle cell protein synthesis and its contribution to the yolk of the *Cecropia* moth oocyte. *Develop. Biol.* 52: 83-97.
- Beenackers, A. M. T. 1983. Regulation of lipid metabolism. *In*: Endocrinology of insects. Roger, G. H., and H. Laufer (eds.), Alan R. Liss, New York.
- Beetsma, J. 1979. The process of queen-worker differentiation in the honey bee. *Bee World* 60: 24-38.
- Berridge, M. J. 1970. A structural analysis of insect absorption. *Symp. Roy. Entomol. Soc., Lond.* 5:135-151.
- Bier, K. 1954. Über Phasen gesteigerter Protein-und Kohlehydrateinlagerrungen und die Fettverteilung im Hymenopterenovar. *Zool. Anz. Suppl.*, 18: 422-429.
- Bromenshenk, J. J., R. C. Cronn, J. J. Nugent, and G. J. Olbu. 1988. Biomonitoring for Idaho National Engineering Laboratory: Evaluation of fluoride in honey bees. *Science* 227: 632-634.

- Campbell, N. A. 1993. Biology. 3rd edition. University of California, Riverside.
- Caron, D. 1995. The egg and I. Gleanings in bee culture. 123: 35-37.
- Celli, G., C. Porrini, P. Radeghieri, A. G. Sabatini, G. L. Marcazzan, R. Colombo, Barbattini, M. Greatti, and M. D'Agaro. 1996. Honey bees (*Apis mellifera* L.) as bioindicators for the presence of pesticides in the agroecosystem. Field tests. Proceedings of the sixth conference of the Italian section of the International Union for the study of social insects. Insect social life. Dept. Biol. Evol. Univ. Parma, Parma (Italy) 1: 207-212.
- Chapman, R. F. 1982. The insects: Structure and function. 3rd Ed. Harvard University Press, Cambridge, Massachusetts.
- Chino, H. 1985. Lipid transport: biochemistry of hemolymph lipophorin. *In: Comprehensive insect physiology, biochemistry and pharmacology.* Kerkut, G. A., and Gilbert L. I. (eds.), Pergamon Press, Oxford vol. 10: 115-135.
- Chino, H., R. G. H. Downer, and K. Takahashi. 1977. The role of diacylglycerol-carrying lipoprotein in lipid transport during insect vitellogenesis. *Biochem. Biophys. Acta* 487: 508-516.
- Chippendale, G. M. 1978. The functions of carbohydrates in insect life. *In: Biochemistry of insects.* Rockstein, M. (ed.), Academic Press, New York.
- Corbella, E., and L. S. Goncalves. 1982. Relationship between weight at emergence, number of ovarioles and spermathecal volume of africanized honey bee queens (*Apis mellifera* L.). *Rev. Brazil Genet.* 5: 835-840.
- Crailsheim, K. 1988. Transport of leucine in the alimentary canal of the honey bee (*Apis mellifera* L.) and its dependence on season. *J. Insect Physiol.* 34: 1093-1100.
- Crane, E. 1983. The archaeology of beekeeping. Duckworth, London, England.
- Crane, E. 1990. Bees and beekeeping: science, practice and world resources. Cornell University Press.
- Da Cruz Landim, C. 1985. Histological and cytological studies on the fat body of the queen honey bee abdomen during the active oviposition phase. *Rev. Bras. Biol.* 45: 221-232.
- Dade, H. A. 1977. Anatomy and dissection of the honeybee. International Bee Research Association, London, England.

- Darwin, C. 1859. On origin of species by means of natural selection. Cambridge, London. Reprinted by Harvard University Press (1964).
- DeGrandi-H., G., and J. H. Martin. 1993. Behavior of egg-laying virgin and mated queen honey bees (*Apis mellifera* L.) and composition of brood in their colonies. *J. Apic. Res.* 32: 19-26.
- DeGrandi-Hoffman, G., J. C. Watkins, A. M., Collins, 1998 Queen developmental time as a factor in the Africanization of European honey bee (Hymenoptera: Apidae) populations. *Ann. Entomol. Soc. Amer.* 91: 52-8.
- Doull, K. M. 1976. The effects of different humidities on the hatching of the eggs of honey bees. *Apidologie.* 7: 61-66.
- Dow, J. A. T. 1986. Insect midgut function. *Adv. Insect Physiol.* 19: 187-328.
- Drescher, W. 1968. The duration of honey bee development in relation to the position in the brood nest. *Insectes Soc.* 15: 233-240.
- Du Praw, 1961. A unique hatching process in the honey bee. *Trans. Amer. Micros. Soc.* 80:185-191.
- Du Praw, 1967. The honey bee embryo. *In: Methods in developmental biology.* Wilt, F., and N. Wessels, (eds.), Crowell, New York.
- Engelmann, F. 1970. The physiology of insect reproduction. Pergamon Press, New York.
- Engels, M. S., and T. R. Schultz, 1997. Phylogeny and behavior in honey bees (Hymenoptera: Apidae). *Ann. Entomol. Soc. Amer.* 90: 43-53.
- Engels, W., H. Kaatz, A. Zillikens, Z. L. P. Simões, A. Tube, R. Braun, and F. Dittrich. 1990 Honey bee reproduction: Vitellogenin and caste specific regulation of fertility. *In: Advances in invertebrate reproduction.* Hoshi, M., and O. Yamashita (eds.), 5: 494-501. Elsevier, Amsterdam.
- Engler, D. L., L. A. Willingham, and R. Ziegler. 1998 Variations in the density of lipophorins during late larval and early pupal development of *Menduca sexta*. *Arch. Insect Biochem. Physiol.* 33: 53-61.
- Estoup, A., M. Solignac, and J. -M. Cornuet. 1994. Precise assessment of the number of patrines and of genetic relatedness in honey bee colonies. *Proc. Roy. Soc. Lond. Ser. B,* 258: 1-7.

- Fell, R. D. 1990. Qualitative and quantitative analysis of insect haemolymph sugar by high performance thin-layer chromatography. *Comp. Biochem. Physiol.* 95A: 539-544.
- Fell, R. D., J. T. Ambrose, D. M. Burgett, D. DeJong, R. A. Morse, and T. D. Seeley. 1977. The seasonal cycle of swarming in honey bees. *J. Apic. Res.* 16: 170-173.
- Fell, R. D., and R. A. Morse. 1984. Emergency queen cell production in the honey bee colony. *Insectes Soc.* 31:221-237.
- Fleig, R., and K. Sander. 1985. Blastoderm development in honey bee embryogenesis as seen in the scanning electron microscope. *International J. Invert. Reprod. Develop.* 8: 279-286.
- Fleig, R., and K. Sander. 1986. Embryogenesis of the honey bee *Apis mellifera* L. (Hymenoptera: Apidae): An SEM study. *Int. J. Insect Morph. Embryol.* 15: 449-462.
- Fluri, P., A. G. Sabatini, M. A. Vecchi, and H. Wille. 1981. Blood juvenile hormone, protein and vitellogenin titers in laying and non-laying queen honey bees. *J. Apic. Res.* 20: 221-225.
- Frisch, K. von. 1967. *The dance language and orientation of bees.* Harvard University Press, Cambridge, USA.
- Gary, N. E. 1992. Activities and behavior of honey bees. *In: The hive and the honey bee.* Dadant and Sons, Illinois.
- Girardie, A. 1983. Neurosecretion and reproduction. *In: Endocrinology of insects.* Downer R., and H. Laufer. (eds.), Alan R. Liss Inc., New York.
- Gojmerac, W. L. 1980. *Bees, beekeeping, honey and pollination.* Avi Publishing Company Inc., Connecticut.
- Grant, P. 1978. *Biology of developing systems.* Holt, Rinehart and Winston, New York.
- Gray, D. R., J. A. Logan, F. W. Ravlin, and J. A. Carlson. 1991. Toward a model of gypsy moth egg phenology: Using respiration rates of individual eggs to determine temperature-time requirements of prediapause development. *Environ. Entomol.* 20: 1645-1652.
- Gray, D. R., F. W. Ravlin, J. Regniere, and J. A. Logan. 1995. Further advances

- toward model of gypsy moth (*Lymantria dispar* (L.)) egg phenology: Respiration rates and thermal responsiveness during diapause and age-dependent development rates in postdiapause. *J. Insect Physiol.* 41: 247-256.
- Gunstone, F. D. 1992 Acylglycerols. *In: Lipid analysis: A practical approach.* Hamilton, R. J., and S. Hamilton. (eds.), Oxford University Press, New York.
- Gurr, M. I., and J. L. Harwood. 1991. *Lipid biochemistry: An introduction.* Chapman and Hill, New York.
- Harbo, J. R., and A. B. Bolten. 1981. Development times of male and female eggs of the honey bee. *Ann. Entomol. Soc. Amer.* 74: 504-506.
- Harbo, J. R., A. B. Bolten, T. E. Rinderer, and A. M. Collins. 1981. Development periods for eggs of Africanized and European honey bees. *J. Apic. Res.* 20: 156-159.
- Haydak, M. H. 1970. Honey bee nutrition. *Ann. Rev. Entomol.* 15:143-156.
- Harpaz, I. 1973. Early entomology in the Middle East. *In: History of entomology.* pp 21-36.
- Heinrich, B. 1996. How the honey bee regulates its body temperature. *Bee World* 77: 130-137.
- Henderson, C. E. 1993. Variability in the size of emerging drones and of drone and worker eggs in honey bee (*Apis mellifera* L.) colonies. *J. Apic. Res.* 31: 114-118.
- Hepburn, H. R. 1985. The integument. *In: Fundamentals of insect physiology.* Blum M. S. (ed.), John Wiley & Sons, New York.
- Heran, H. 1952. Investigation of the temperature sense of the honey bee with special reference to the perception of heat radiation. *Z. vergl. Physiol.* 34:179-206.
- Hoffman, G. D., G. A. Hoelzer, M. Spivak, and M. Kidwell. 1990. The degree genetic variability in parthenogenetic honey bees. *In: Molecular insect science.* Hagedorn, H. H., J. G. Hilberband, M. J. Kidwell, and J. H. Law. (eds.). Plenum Press, New York.
- Hoffmann, K. H. 1985. Metabolic and enzyme adaptation to temperature. *In: Environmental physiology and biochemistry of insects.* Springer Verlag, Berlin, Heidelberg, New York.

- Huebner, E., and E. Anderson. 1972. A cytological study of the ovary of *Rhodnius prolixus*. II. Oocyte differentiation. *J. Morphol.* 137: 385-416.
- Irie, K., and O. Yamashita. 1983. Egg-specific protein in the silkworm *Bombyx mori*: purification, properties localization, and titer changes during oogenesis and embryogenesis. *Insect Biochem.* 13: 71-80.
- Jay, S. C. 1968. Factors influencing ovary development of worker honey bees under natural conditions. *Can. J. Zool.* 46: 345-347.
- Jay, S. C. 1970. The effects of various combinations of immature queen and worker bees on the ovary development of worker honey bees in colonies with and without queens. *Can. J. Zool.* 48: 169-173.
- Jay, S. C., and E. V. Nelson. 1973. The effects of laying worker honey bees (*Apis mellifera* L.) and their brood on the ovary development of other worker honey bees. *Can. J. Zool.* 51: 629-632.
- Judge, D. N., D. E. Mullins, and J. L. Eaton. 1989. Microquantity analysis of insect hemolymph by high performance thin layer chromatography. *J. Plan. Chromat.* 2: 442-446.
- Kates, M. 1986. Techniques in lipidology: isolation, analysis and identification of lipids. 2nd ed. Elsevier Amsterdam.
- Keister, M., and J. Buck 1974 Respiration: Some exogeneous and endogeneous effects on rate of respiration. *In: The physiology of insecta.* Rockstein, M. (ed.) vol. 4, Academic Press. New York.
- Kerr, W. E. 1951 Sex chromosome in honey bee. *Evolution.* 5: 80-81.
- Kerr, W. E. 1972a. Numbers of chromosomes in some species of bees. *J. Kan. Entomol. Soc.* 45: 111-122.
- Kerr, W. E., and H. H. Laidlaw. 1956. General genetics of bees. *Adv. Genet.* 8: 109-153.
- Kigatiira, K. I. 1976. Keeping bees in fixed-comb and movable-comb frameless hives. Agriculture in Tropical Climates. *In: Agriculture in Tropical Climates.* Crane, E. (ed.), Intern. Bee Res. Assoc. Lond. pp. 9-13.
- Kigatiira, K. I. 1984. Apiculture and apicultural research in Kenya. *Proc. Third Intern. Conf. Apic. Trop.l Climates.* Nairobi. 33-38, 257.

- Klungness, L. M., and Y. S. Peng. 1984. A histochemical study of pollen digestion in the alimentary canal of the honey bee (*Apis mellifera* L.). *J. Insect Physiol.* 30: 511-521.
- Koeniger, G. N. 1970. Factors determining the laying of drone and worker egg by the queen honey bee. *Bee World* 51: 166-169.
- Koeniger, G., N. Koeniger, and M. Fabritius. 1979. Some detailed observations of mating in the honey bee. *Bee World* 60: 53-57.
- Korst, P. J. A. M., and H. H. W. Velthus, 1982. The nature of trophallaxis in honey bees. *Insectes Soc.*, 29: 209-221.
- Kuhnholz, S., and T. D. Seeley 1997. The control of water collection in honey bee colonies. *Behav. Ecol. Sociobiol.* 41: 407-422.
- Lehninger, A. 1975. *Biochemistry*, 2 nd Edition. Worth Publishers, New York.
- Levin, C. G., and C. H. Collinson. 1990. Broodnest temperature differences and their possible effect on drone brood production and distribution in honey bee colonies. *J. Apic. Res.* 29: 34-45.
- Lindauer, M. 1954. Ein Beitrag zur Frage der Arbeitsteilung im Bienenstaat. *Z. vergl. Physiol.* 34: 299-345. (Transl. *Bee World* 34: 63-73, 85-90).
- Mangum, W. A. 1996. Laying workers: An introduction to their biology and photographing their egg-laying behavior. *Amer. Bee J.* 136: 845-849.
- Meier, K. 1916. Die postembryonale Entwicklung des Geschlechtsapparates der Arbeitsbiene (*Apis mellifera* L.). *Zeitschr. angew. Entomol.* 3: 45-47, 3 text figs., 2 pls.
- Michener, 1969. Comparative social behavior of bees. *Annu. Rev. Entomol.* 14: 299-342.
- Michener, C. D. 1974. *The social behavior of the bees: A comparative study.* Harvard University Press, Cambridge, Massachusetts.
- Milne Jr, C. P., J. P. Philips, and P. J. Krell. 1988. A photomicrographic study of worker honey bee embryogenesis. *J. Apic. Res.* 27: 69-83.
- Moritz, R. F. A. 1992. Nourishment and sociality in honey bees. *In: Nourishment and the evolution of sociality.* Hunt, J. H., and C. A. Nalepa (eds.), Westview Press, Boulder, Colorado.

- Moritz, R. F. A. 1994. Molecular biology of the honey bee. *In: Adv. Insect Physiol.* 25:104-149.
- Moritz, R. F. A., and E. E. Southwick. 1992. Bees as superorganisms: An evolutionary reality. Springer-Verlag, Berlin, Heidelberg.
- Morrill, G. A. and A. B. Kostellow. 1991. Role of ions in oocyte function and meiotic divisions. *In Oogenesis, spermatogenesis and reproduction.* Kinne R. K. N. (ed.) Karger, New York.
- Mullins, D. E. 1985 Chemistry and physiology of the hemolymph. *In: Comprehensive insect physiology, biochemistry and pharmacology.* Kerkut, G. A., and L. I. Gilbert (eds.), Pergamon Press, Oxford, vol. 3: 355-400.
- Nightingale, J. M. 1976. Traditional beekeeping among Kenya tribes, and methods proposed for improvement and modernization. *In: Agriculture in tropical climates.* Crane, E. (ed.), International Bee Research Association, London pp. 15-22.
- Nunamaker, R. A. 1979. Being stung by the press. *Amer. Bee J.* 587-592, 646-648.
- Oldroyd, B. P., M. J. Clifton, S. Wongsiri, T. E. Rinderer, H. A. Sylvester, and R. H. Crozier. 1997. Polyandry in the genus *Apis*, particularly *Apis andreniformis*. *Behav. Ecol. Sociobiol.* 40: 17-26.
- Owens, C. D. 1971. The thermology of wintering honey bee colonies. *Technical Bulletin, U. S. Department of Agriculture* 1429: 1-32.
- Page, R. E. 1986. Sperm utilization in social insects. *Annu. Rev. Entomol.* 31: 297-320.
- Page, R. E., and R. A. Metcalf. 1984. A population investment sex ratio for the honey bee (*Apis mellifera* L.). *Amer. Nat.* 124: 680-702.
- Page, R. E., and G. E. Robinson. 1994. Reproductive competition in queenless honey bee colonies (*Apis mellifera* L.). *Behav. Ecol. Sociobiol.* 35: 99-107.
- Page Jr., R. E., and E. H. Erickson Jr. 1988. Reproduction by worker honey bees (*Apis mellifera* L.). *Behav. Ecol. Sociobiol.* 23: 117-126.
- Pager, H. 1973. Rockpaintings in Southern Africa showing bees and honey hunting. *Bee World* 54: 61-68.
- Pager, H. 1976. Cave paintings suggest honey hunting activities in ice age times.



Bee World 57: 9-14.

Peck, A. L. 1965. Aristotle • *Historia animalium* (translation) vol. 3. Heinemann, London: Harvard Cambridge, Massachusetts.

Pellegrin, P., and A. Preus. 1986. Aristotle's classification of animals. Biology and conceptual unity of the Aristotelian corpus ( a translation). University of California Press, Berkeley.

Pettis, J. S., M. L. Winston, and K. N. Slessor. 1995. Behavior of queen and worker honey bees (Hymenoptera: Apidae) in response to exogenous queen mandibular gland pheromone. *Ann. Entomol. Soc. Amer.* 88: 580-588.

Postlethwait, J. H., and F. Giogi. 1985. Vitellogenesis in insects. *In: Developmental biology.* Browder, L. W. (ed.). Plenum Press, New York.

Potter, A. 1977 *The killer bees.* Grosset and Dunlap, New York.

Premkumar, D. R. D., E. P. Jane, and S. Mathavan. 1991. Biochemical changes during embryonic development in the aquatic hemipteran bug *Laccotrephes griseus*. *Insect Biochem.* 21: 381-188.

Ratnieks, F. L. W. 1993. Egg-laying, egg removal, and ovary development by worker in queenright honey bee colonies. *Behav. Ecol. Sociobiol.* 32: 191-198.

Ratnieks, F. L. W. 1995. Evidence for a queen-produced egg-marking pheromone and its use in worker policing in the honey bee. *J. Apic. Res.* 34: 31-37.

Richards, A. G. 1957. Cumulative effects of optimum and suboptimum temperature on insect development. *In: Influence of temperature on biological systems.* Johnson, F. H. (ed.). Amer. Physiol. Soc.

Richter, H. P. and W. Schwarz. 1991. Na<sup>+</sup>-dependent carrier transport in amphibian oocyte and its regulation during development. *In Oogenesis, spermatogenesis and reproduction.* Kinne, R. K. N (ed.) Karger, New York.

Robinson, W. S. K., R. Nowogrodzki and R. A. Morse. 1989. The value of honey bees as pollinators of U. S. Crops. *Amer. Bee J.* 129: 411-423 and 477-487.

Rothenbuhler, W. C., J. W. Gowen, and O. W. Park. 1952. Androgenesis with zygogenesis in gynandromorphic honey bees (*Apis mellifera* L.). *Science* 115: 637-638.

- Ruttner, F. 1968. Intraracial selection or race-hybrid breeding of honey bees. *Amer. Bee J.* 108:394-396.
- Ruttner, F. 1975a. Races of bees. *In: The hive and the honey bee.* Dadant and Sons. Hamilton IL.
- Ruttner, F. 1975b. The African races of honey bees. *Proc. of Intern. Apic. Congr.* 25: 325-344.
- Ruttner, F. 1988. *Biogeography and Taxonomy of Honey bees.* Springer-Verlag., Berlin Heidelberg, New York.
- SAS Institute Inc., 1989-1996. Release 6.12 software.
- Sander, K., H. O. Gutzeit, and H. Jackle. 1985. Insect embryogenesis: Morphology physiology, genetical and molecular aspects. *In: Comprehensive insect physiology biochemistry and pharmacology.* Kerkut, G. A., and L. I. Gilbert. (eds.) Pergamon Press, 1: 321-338.
- Schmidt, J. O. 1992. Allergy to venomous insects. *In: The hive and the honey bee.* Dadant and Sons, Hamilton, Illinois.
- Schnetter, M. 1934. Physiologische untersuchungen uber das differenzierungszentrum in der embyonientwicklung der honibiene. *Wilh Roux's Archiv.* 131: 285-323.
- Seeley, T. D. 1982. Adaptive significance of the age polyethism schedule in honey bee colonies. *Behav. Ecol. Sociobiol.* 11:287-293.
- Seeley, T. D. 1985. *Honey bee Ecology: A study of adaptation in social life.* Princeton University Press, Princeton, New Jersey.
- Seeley, T. D. and R. A. Morse. 1976. The nest of the honey bee (*Apis mellifera* L.). *Insectes Soc.* 23: 495-512.
- Shimada, S., and O. Yamashita. 1979. Trehalose absorption related with trehalase in developing ovaries of the silk worm *Bombyx mori* L. *J Comp. Physiol.* B131: 333-339.
- Smith, D. A. 1977. First honey bees in America. *Bee World* 58: 56.
- Snodgrass, R. E. 1956. *Anatomy of the honey bee.* Cornell University Press, Ithaca, New York.
- Southwick, E. E. 1992. Physiology and social physiology of the honey bee. *In:*

- The hive and the honey bee. Dadant and Sons, Illinois.
- Southwick, L. Jr., and E. E. Southwick. 1989. A comment on value of honey bees as pollinators of U. S. Crops. *Amer. Bee J.* 129: 805-807.
- Southwick, E. E. 1988. Genetic and age polyethism in honey bees. *Amer. Bee J.*
- Spadling, A. C. 1993 Developmental genetics of oogenesis. *In: The development of Drosophila melanogaster.* Cold Spring Harbor Laboratory Press.
- Spangler, H. G. 1986. High frequency sound production by honey bees. *J. Apic. Res.* 25: 213-219.
- Standifer, L. and S. E. McGregor. 1977. Using honey bees to pollinate crops. Agricultural Research Service. Leaflet No. 549, Washington, D.C.: USDA.
- Starr, C. K. 1987. Queen or worker, which is the original honey bee? (*Hymenoptera: Apidae*). *Sociobiology* 13: 287-293.
- Steele, J. E. 1983. Endocrine control of carbohydrate metabolism in insects. *In: Endocrinology of Insects.* Roger, G. H., and H. Laufer (eds.), Alan R. Liss, New York.
- Stein, K. J., and R. D. Fell. 1994. Egg weights, energy reserves, and internal nest temperatures in nests of *Dolichovespula maculata* (*Hymenoptera: Vespidae*). *Ann. Entomol. Soc. Amer.* 87: 554-561.
- Taber, S., III, and W. C. Roberts 1963. Egg weight variability and its inheritance in the honey bee. *Ann. Entomol. Soc. Amer.* 56:473-476.
- Trumbo, S. T., Z.-Y. Huang, and G. E. Robinson. 1997. Division of labor between undertaker specialists and other middle-aged workers in honey bee colonies. *Behav. Ecol. Sociobiol.* 41: 151-163.
- Turunen, S. 1985. Absorption. *In: Comprehensive insect physiology, biochemistry and pharmacology.* Kerkut, G. S., and L. I. Gilbert (eds.), Pergamon Press, Oxford. 4: 241-277.
- Turunen, S., and K. Crailsheim. 1996. Lipid and sugar absorption. *In: Biology of the insect midgut.* Lehane, M. J., and P. F. Billingsley (eds.), Chapman and Hall, New York.
- Underwood, A. J. 1997 *Experiments in ecology.* Cambridge University Press.
- Ute, P., and K. Crailsheim. 1997 Glycogen in honey bee queens, workers and drones

- (*Apis mellifera carnica* Pollm.) J. Insect Physiol. 43: 155-165.
- Velthuis, H. H. W. 1990. Regulation of honey bee reproduction at colony level. *In*: Advances in invertebrate reproduction. Hoshi, M., and O. Yamashita (eds.), 5: 489-494. Elsevier, Amsterdam.
- Visscher, P. K. 1989. A quantitative study of worker reproduction in honey bee colonies. Behav. Ecol. Sociobiol., 25: 247-254.
- Visscher, P.K., and R. Dukas. 1995. Honey bees recognize development of nestmates' ovaries. Animal Behav. 49: 542-544.
- Wheeler, D. 1996. The role of nourishment in oogenesis. Ann. Rev. Entomol. 41: 407-31.
- Wilson, E. O. 1971. The insect societies. Harvard University Press, Cambridge, Massachusetts.
- Winston, M. L. 1987. The biology of the honey bee. Harvard University Press, Cambridge, Massachusetts.
- Winston, M. L. 1992. Killer bees: the Africanized honey bees in the Americas.
- Winston, M. L., and K. N. Slessor. 1992. The essence of royalty: Honey bee queen pheromone. Am. Sci. 80: 374-385.
- Wood, E. F. 1956. Queen piping. Bee World. 37: 185-195, 216-219.
- Woodring, J., M. Boulden, S. Das, and G. Gade. 1993. Studies on blood sugar homeostasis in the honey bee (*Apis mellifera* L.) J. Insect Physiol. 39: 89-97.
- Woyke, J. 1994. Comparison of the size of eggs from *Apis mellifera* queens and laying workers. Apidologie 25: 179-187.
- Yamashita, O., and K. Hasegawa. 1970. Oocyte age sensitive to the diapause hormone from the standpoint of glycogen synthesis in the silk worm *Bombyx mori*. J. Insect Physiol. 16: 2377-2383.
- Zar, J. H. 1996. Biostatistical analysis. Prentice Hall, Upper Saddle River, New Jersey.

## VITA

Lucas A. M. Mackasmiel was born on Monday May 01, 1950 (Kenya's Labor Day), in Kisumu District, Kenya, to Kasmiel J. and Francisca O. Okora. A third child in a line-up of ten children, he assumed the role of the eldest son after the death of an elder brother. He showed keen interest in a number of areas ranging from engineering to biology as a young person. In primary and secondary schools he exhibited thorough interest in sciences, with biology and physical sciences topping the rest of the subjects. On completion of high school, Lucas taught in various primary schools (Ministry of Education) before going to Bukura Institute of Agriculture (1974/76) where he earned a certificate in Agriculture; receiving the PBFL/FAO cup and 5-book awards for the best student. He then taught at Bukura Institute of Agriculture before joining the Agricultural Extension (Ministry of Agriculture 1977). In 1978, Lucas joined Egerton College and earned a top performance diploma in Animal Husbandry (receiving Friesland cup and 4-book awards for the highest GPA in the graduating class). After briefly rejoining Bukura Institute of Agriculture as a lecturer, Lucas was recalled to Egerton College to join the Department of Animal Science as a demonstrator. Egerton College was converted to University College in 1986 and became a full fledged University in 1987. In 1988, Lucas joined Egerton University, to study B. S. in Animal Production, which he earned in 1992, getting an Upper 2nd class honors. It was during this period (Summer 1990) that he was selected among the five best students to travel to the USA for an internship at VPI & SU. Lucas is a member of Animal Production Society of Kenya and Agricultural Society of Kenya. He is married to Orpah with three children.