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**LITERATURE**

- Ågren, L. and Hallberg, E. (1996). Flagellar sensilla of bumble bee males (Hymenoptera, Apidae, *Bombus*). *Apidologie* **27**, 445-450.
- Alcock, J. (1993). *Animal behavior: an evolutionary approach*. Sinauer Associates.
- Ali, M. A. (1978). General introduction. In *Sensory Ecology* (ed. M. A. Ali), pp. 3-8. New York: Plenum.
- Almaas, T. J., Christensen, T. A. and Mustaparta, H. (1991). Chemical communication in heliothine moth. *Journal of Comparative Physiology A* **169**, 249-258.
- Altner, H. (1977). Insect sensillum specificity and structure: an approach to a new typology. In *Olfaction and Taste*, vol. 6 (ed. J. LeMagnen and P. MacLeod), pp. 295-303. London: Inf. Retr.
- Altner, H. and Loftus, R. (1985). Ultrastructure and function of insect thermo- and hygrometers. *Ann. Rev. Entomol.* **30**, 273-295.
- Altner, H., Sass, H. and Altner, I. (1977). Relationship between structure and function of antennal chemo-, hygro-, and thermoreceptive sensilla in *Periplaneta americana*. *Cell Tissue Res.* **176**, 389-405.
- Ameismeier, F. (1985). Embryonic development and molting of the antennal coeloconic pore and double-walled sensilla in *Locusta migratoria* (Insecta, Orthopteroidea). *Zoomorphology* **105**, 356-366.
- Anderson, J. F. and Ultsch, G. R. (1987). Respiratory gas concentration in the microhabitats of some Florida arthropods. *Comp. Biochem. Physiol.* **88A**, 585-588.
- Anderson, J. R. and Olkowski, W. (1968). Carbon dioxide as an attractant for host-seeking *Cephenemyia* females (Diptera: Oestridae). *Nature* **220**, 190-191.
- Bahadori, M. N. (1978). Passive cooling system in Iranian architecture. *Scientific American* **238**, 144-154.
- Bell, J. W. and Kramer, E. (1979). Search and anemotactic orientation of cockroaches. *J. Insect Physiol.* **25**, 631-640.
- Boeckh, J. (1962). Elektrophysiologische Untersuchungen an einzelnen Geruchsrezeptoren auf der Antenne des Totengräbers *Necrophorus spec.* *Z. vergl. Physiol.* **46**, 212-248.
- Bogner, F. (1990). Sensory physiological investigation of carbon dioxide receptors in Lepidoptera. *J. Insect Physiol.* **36**, 951-957.
- Bogner, F., Boppré, M., Ernst, K.-D. and Boeckh, J. (1986). CO<sub>2</sub> sensitive receptors on the labial palps of *Rhodogastria* moths (Lepidoptera: Arctiidae): physiology, fine structure and central projection. *J. Comp. Physiol. A* **158**, 741-749.
- Böhm, H. (1995). Dynamic properties of orientation to turbulent air current by walking carrion beetles. *J. Exp. Biol.* **198**, 1995-2005.
- Brener, A. G. F. and Ruggiero, A. (1994). Leaf-cutting ants (*Atta* and *Acromyrmex*) inhabiting Argentina: patterns in species richness and geographical range sizes. *Journal of Biogeography* **21**, 391-399.

- Bühler, A., Lanzrein, B. and Wille, H. (1983). Influence of temperature and carbon dioxide concentration on juvenile hormone titre and dependent parameters of adult worker honey bees (*Apis mellifera*). *J. Insect Physiol.* **29**, 885-893.
- Burkhardt, J. F. (1991). Der Einfluss verschiedener CO<sub>2</sub>-Konzentrationen auf das Verhalten der Ameise *Pheidole pallidula*. In *Verh. Dt. Zool. Ges.*, vol. 84 (ed. H.-D. Pfannenstiel), pp. 303-304. Jena: Gustav Fischer Verlag.
- Chapela, I. H., Rehner, S. A., Schultz, T. R. and Mueller, U. G. (1994). Evolutionary history of the symbiosis between fungus-growing ants and their fungi. *Science* **266**, 1691-1694.
- Chittka, L., Thomson, J. D. and Waser, N. M. (1999). Flower constancy, insect physiology, and plant evolution. *Naturwissenschaften* **86**, 313-329.
- Collins, M. S. (1969). Water relations in termites. In *The Biology of Termites*, vol. 1 (ed. K. Krishna and F. M. Weesner), pp. 433-458. N.Y.: Academic Press.
- Daguerre, J. B. (1945). Hormigas del genero *Atta* de la Argentina (Hym.: Formicidae). *Rev. Soc. Ent. Argentina* **12**, 438-460.
- Davis, E. E. (1984). Regulation of sensitivity in the peripheral chemoreceptor systems for host seeking behaviour by a haemolymph-borne factor in *Aedes aegypti*. *J. Insect Physiol.* **30**, 179-183.
- Davis, E. E. and Sokolove, P. G. (1975). Temperature responses of the antennal receptors of the mosquito, *Aedes aegypti*. *J. Comp. Physiol.* **96**, 223-233.
- De Kramer, J. J. (1985). The electrical circuitry of an olfactory sensillum in *Antheraea polyphemus*. *J. Neurosci.* **5**, 2484-2493.
- Dukas, R. (1998). Constraints on information processing and their effects on behavior. In *Cognitive Ecology* (ed. R. Dukas), pp. 89-127. Chicago: University of Chicago Press.
- Dumpert, K. (1972). Bau und Verteilung der Sensillen auf der Antennengeißel von *Lasius fuliginosus* (Latr.) (Hymenoptera, Formicidae). *Z. Morph. Tiere* **73**, 95-116.
- Dumpert, K. (1972). Alarmstoffrezeptoren auf der Antenne von *Lasius fuliginosus* (Latr.) (Hymenoptera, Formicidae). *Z. vergl. Physiol.* **76**, 403-425.
- Dumpert, K. (1978). *Das Sozialleben der Ameisen*. Berlin und Hamburg: Paul Paray.
- Dusenberry, D. B. (1992). *Sensory ecology*. New York: Freeman.
- Ehmer, B. (1997). Behavior and the control of antennal movements in the ant *Odontomachus*. *Ph.D. Thesis*. Würzburg: Julius Maximilians Universität.
- Ehn, R. and Tichy, H. (1996). Response characteristics of a spider warm cell: temperature sensitivity and structural properties. *J. Comp. Physiol. A* **178**, 537-542.
- Eidmann, H. (1935). Zur Kenntnis der Blattschneiderameise *Atta sexdens*. *Z. Angew. Entomol.* **22**, 185.
- Endler, J. A. (1992). Signals, signal conditions, and the direction of evolution. *Am. Nat.* **139**, 125-153.
- Es'Kov, E. K. (1974). The hives microclimate and the bee colony's biological condition. *Pchelovodstvo* **94**, 19-21.
- Forel, A. (1884). Études myrmécologiques. *Soc. Vaud. Sc. Nat.* **20**, 91.
- Forel, A. (1910). *Das Sinnesleben der Insekten*. München: Ernst Reinhardt Verlag.

- Gebhardt, H. (1953). Die Lage der wichtigsten Thermorezeptoren bei einigen Insekten. *Zool. Jb. Physiol.* **63**, 558-592.
- Gilles, M. T. (1980). The role of carbon dioxide in host-finding mosquitos (Diptera: Culicidae): a review. *Bull. Entomol. Res.* **70**, 525-532.
- Grant, A. J., Wigton, B. E., Aghajanian, J. G. and O'Connell, R. J. (1995). Electrophysiological responses of receptor neurons in mosquito maxillary palp sensilla to carbon dioxide. *J. Comp. Physiol. A* **177**, 389-396.
- Hangartner, W. (1969). Structure and variability of an individual odor trail in *Solenopsis geminata* (Hymenoptera: Formicidae). *Z. vergl. Physiol.* **62**, 111-120.
- Hangartner, W. (1969). Carbon dioxide, a releaser for digging behavior in *Solenopsis geminata* (Hymenoptera: Formicidae). *Psyche* **76**, 58-67.
- Hansen, K. (1999). Latencies of the fly's taste hair as measure of the dendritic membrane size involved in transduction. In *Göttingen Neurobiology* (ed. N. Elsner and U. Eysel), pp. 351. Göttingen: Thieme Verlag.
- Harkness, M. L. R. and Harkness, R. D. (1988). An effect of carbon dioxide on the behavior of an ant, *Messor wasmanni*. *Proc. Phys. Soc.* , 98.
- Hashimoto, Y. (1990). Unique features of sensilla on the antennae of Formicidae (Hymenoptera). *Appl. Ent. Zool.* **25**, 491-501.
- Hashimoto, Y. (1991). Phylogenetic study of the family Formicidae based on the sensillum structures on the antennae and labial palpi (Hymenoptera, Aculeata). *Jpn. J. Ent.* **59**, 125-140.
- Hashimoto, Y. (1992). Unique sensillum structure of the formicid labial palpi (Hymenoptera). *Humans & Nature* **1**, 57-62.
- Hebling, M. J. A., Penteado, C. H. S. and Mendes, E. G. (1992). Respiratory regulation in workers of the leaf cutting ant *Atta sexdens rubropilosa* Forel, 1908. *Comp. Biochem. Physiol.* **101A**, 319-322.
- Heinrich, B. (1993). Social thermoregulation. In *The Hot-Blooded Insects*, pp. 447-509. Berlin Heidelberg: Springer Verlag.
- Himmer, A. (1927). Ein Beitrag zur Kenntnis des Wärmehaushalts im Nestbau sozialer Hautflügler. *Z. vergl. Physiol.* **5**, 375-389.
- Hölldobler, B., Braun, U., Gronenberg, W., Kirchner, W. and Peeters, C. (1994). Trail communication in the ant *Megaponera foetens* (Fabr.) (Formicidae, Ponerinae). *J. Insect Physiol.* **40**, 585-593.
- Hölldobler, B. and Wilson, E. O. (1990). *The Ants*. Cambridge: Belknap Press.
- Honomichl, K. and Guse, G.-W. (1981). Digitiform sensilla on the maxillar palp of Coleoptera III. Fine structure in *Tenebrio molitor* L. and *Dermestes maculatus*. *Acta Zoologica* **62**, 17-25.
- Howarth, F. G. (1983). Ecology of cave arthropods. *Ann. Rev. Entomol.* **28**, 365-389.
- Iwanami, Y. (1978). Myrmicacin, a new inhibitor for mitotic progression after metaphase. *Protoplasma* **95**, 267-271.

- Jacoby, M., Mendes and Rio, E. (1953). Die Erforschung des Nestes der Blattschneider-Ameise *Atta sexdens rubropilosa* Forel. Teil I. *Z. ang. Ent.* **34**, 145-169.
- Jaisson, P. (1969). Etude de la distribution des organes sensoriels de l'antenne et leurs relations possibles avec le comportement chez deux fourmis myrmicines: *Myrmica laevinodis* Nyl. et *Aphenogaster gibbosa* Latr. recoltées dans la région des eyzies. *Insectes Soc.* **16**, 279-312.
- Jonkman, J. C. M. (1978). Population dynamics of leaf-cutting ant nests in a Paraguayan pasture. *Z. ang. Ent.* **87**, 281-293.
- Jonkman, J. C. M. (1979). Distribution and densities of the leaf-cutting ant *Atta vollenweideri* Forel, 1893 in Paraguay. *Z. ang. Ent.* **88**, 27-43.
- Jonkman, J. C. M. (1980). The external and internal structure and growth of nests of the leaf-cutting ant *Atta vollenweideri* Forel, 1893 (Hym.: Formicidae) Part I. *Z. ang. Ent.* **89**, 158-173.
- Jonkman, J. C. M. (1980). The external and internal structure and growth of nests of the leaf-cutting ant *Atta vollenweideri* Forel, 1893 (Hym.: Formicidae) Part II. *Z. ang. Ent.* **89**, 217-246.
- Just, S. (1998). Möglichkeiten, Grenzen und Kontrolle der Mandibelbewegung bei Ameisen. *Ph.D. Thesis*. Würzburg: Julius Maximilians Universität.
- Kaib, M., Ziesmann, J. and Wolfrum, U. (1993). Modulation of odour-sensitivity by carbon dioxide in a termite sensillum: A possible mechanism for signal interpretation. In *Sensory Systems of Arthropods* (ed. K. W. e. al.), pp. 481-488. Basel: Birkhäuser.
- Kaissling, K.-E. (1971). Chemical senses. In *Handbook of Sensory Physiology*, vol. IV/1 (ed. L. M. Beidler), pp. 523-533. Heidelberg: Springer.
- Kaissling, K.-E. (1972). Kinetic studies on transduction in olfactory receptors of *Bombyx mori*. In *Olfaction and Taste IV* (ed. D. Schneider), pp. 207-213. Stuttgart: Wiss. Verlagsgesellschaft MBH.
- Kaissling, K.-E. (1997). Pheromone-controlled anemotaxis in moths. In *Orientation and Communication in Arthropods* (ed. M. Lehrer), pp. 343-374. Basel: Birkhäuser Verlag.
- Kaissling, K.-E., Zack-Strausfeld, C. and Rumbo, E. (1987). Adaptation processes in insect olfactory receptors: mechanisms and behavioral significance. Int. Symp. Olfaction Taste IX. In *Int. Symp. Olfaction Taste IX*, vol. 510, pp. 104-112. Stuttgart: Wiss. Verlagsges.
- Keil, T. A. (1982). Contacts of pore tubules and sensory dendrites in antennal chemosensilla of a silkworm: demonstration of a possible pathway for olfactory molecules. *Tissue Cell* **14**, 451-462.
- Keil, T. A. (1997). Comparative morphogenesis of sensilla: A review. *Int. J. Insect Morphol. & Embryol.* **26**, 151-160.
- Keil, T. A. and Steiner, C. (1991). Morphogenesis of the antenna of the male silkworm, *Antheraea polyphemus*. III. Development of olfactory sensilla and the properties of hair forming cells. *Tissue and Cell* **23**, 821-851.
- Kellogg, F. E. (1970). Water vapour and carbon dioxide receptors in *Aedes Aegypti*. *J. Insect Physiol.* **16**, 99-108.

- Kirchner, W. (1998). Schlechte Luft in Waldameisennestern? *Ameisenschutz aktuell* **12**, 33-46.
- Kleineidam, C. and Roces, F. (in press). Carbon dioxide concentration and nest ventilation in the giant nests of the leaf-cutting ant *Atta vollenweideri*. *Insectes soc.*
- Kline, D. L., Wood, J. R. and Cornell, J. R. (1991). Interactive effects of 1-octen-3-ol and carbon dioxide on mosquito (Diptera: Culicidae) surveillance and control. *J. Med. Entomol.* **28**, 254-258.
- Korb, J. and Linsenmair, K. E. (1999). The architecture of termite mounds: a result of a trade-off between thermoregulation and gas exchange? *Behav. Ecol.* **10**, 312-316.
- Kuhbandner, B. (1985). Ultrastructure and ontogeny of the double-walled sensilla on the funicle of *Calliphora erythrocephala* Meigen (Diptera, Calliphoridae). *Int. J. Insect Morphol. Embryol.* **14**, 227-242.
- Lacher, V. (1964). Elektrophysiologische Untersuchungen an einzelnen Rezeptoren für den Geruch, Kohlendioxid, Luftfeuchtigkeit und Temperatur auf den Antennen der Arbeitsbiene und der Drohne (*Apis mellifica* L.). *Z. vergl. Physiol.* **48**, 587-623.
- Lechner, M. (1995). Aktivität, Futtersuchstrategien und Orientierung von Ameisenkoonien der Art *Lasius niger* unter Einfluss von Kohlendioxid. *Diploma Thesis*, pp. 1-50. Tübingen: University of Tübingen.
- Lee, J.-K., Selzer, R. and Altner, H. (1985). Lamelated outer dendritic segments of a chemoreceptor within wall-pore sensilla in the labial palp-pit organ of the butterfly, *Pieris rapae* L. (Insecta, Lepidoptera). *Cell Tissue Res.* **240**, 333-342.
- Lemon, W. C. and Getz, W. (1997). Temporal resolution of general odor pulses by olfactory sensory neurons in american cockroaches. *J. Exp. Biol.* **200**, 1809-1819.
- Lighton, J. R. B., Bartholomew, G. A. and Feener, D. H., Jr. (1987). Energetics of locomotion and load carriage and a model of the energy cost of foraging in the leaf-cutting ant *Atta colombica* Guer. *Physiol. Zool.* **60**, 524-537.
- Lindauer, M. (1961). Communication among social bees. Cambridge: Harvard University Press.
- Loftus, R. (1968). The response of the antennal cold receptor of *Periplaneta americana* to rapid temperature changes and to steady temperature. *Z. vergl. Physiol.* **59**, 413-455.
- Loftus, R. (1976). Temperature-dependent dry receptor on the antennae of *Periplaneta*. Tonic response. *J. Comp. Physiol.* **111**, 153-170.
- Lüscher, M. (1956). Die Lüfterneuerung im Nest der Termite *Macrotermes natalensis* (Haviland). *Insectes soc.* **3**, 273-276.
- Lüscher, M. (1961). Air-conditioned termite nests. *Scient. Am.* **205**, 138-145.
- Martin, H. (1964). Zur Nahorientierung der Biene im Duftfeld zugleich ein Nachweis für die Osmotropotaxis bei Insekten. *Z. vergl. Physiol.* **48**, 481-533.
- Martini, R. (1984). Bau und Entwicklung der chemosensitiven Sensillen auf den Antennen der Grabwespen (Hymenoptera, Sphecidae). *Ph.D. Thesis*, pp. 258. Universität Karlsruhe.
- Matsumoto, T. (1977). Respiration of fungus comb and CO<sub>2</sub> concentration in the center of mounds of some termites. *Proc. 8th IUSSI Cong.* , 104-105.

- McIver, S. B. (1982). Sensilla of Mosquitoes (Diptera: Culicidae). *J. Med. Entomol.* **19**, 489-535.
- Meinecke, C.-C. (1975). Riechsensillen und Systematik der Lamellicornia (Insecta, Coleoptera). *Zoomorph.* 1-42.
- Mueller, U. G., Rehner, S. A. and Schultz, T. R. (1998). The evolution of agriculture in ants. *Science* **281**, 2034-2038.
- Murlis, J., Elkinton, J. S. and Cardé, R. T. (1992). Odor plumes and how insects use them. *Annu. Rev. Entomol.* **37**, 505-532.
- Mustaparta, H. (1990). Chemical information processing in the olfactory system of insects. Part I: Periphery. *Physiol. Review* **70**, 199-243.
- Myers, J. H., Monro, J. and Murray, N. D. (1981). Egg clumping, host plant selection and population regulation in *Cactoblastis cactorum*. *Oecologia* **51**, 7-13.
- Navarro, J. G. and Jaffe, K. (1985). On the adaptive value of nest features in the grass-cutting ant *Acromyrmex landolti*. *Biotropica* **17**, 347-348.
- Neuhaus, W. (1965). Zur Frage der Osmotropotaxis, besonders bei der Honigbiene. *Z. vergl. Physiol.* **49**, 481-533.
- Nicolas, G. and Sillans, D. (1989). Immediate and latent effects of carbon dioxide in insects. *Ann. Rev. Entomol.* **34**, 97-116.
- Noirot, C. (1970). The nests of termites. In *The Biology of Termites*, vol. 2 (ed. K. Krishna and F. M. Weesner), pp. 37-125. N.Y.: Academic Press.
- Núñez, J. A. (1982). Food source orientation and activity in *Rhodnius prolixus* Stal (Hemiptera: Reduviidae). *Bull. Entomol. Res.* **72**, 253-262.
- Oliveira, P. S. and Hölldobler, B. (1989). Orientation and communication in the neotropical ant *Odontomachus bauri* Emery (Hymenoptera, Formicidae, Ponerinae). *Ethology* **83**, 154-166.
- Paim, U. and Beckel, W. E. (1964). The behaviour of the larvae of *Orthosoma brunneum* (Forster) (Coleoptera: Cerambycidae) in relation to gases found in the logs inhabited by the larvae. *Can. J. Zool.* **42**, 327-353.
- Paim, U. and Beckel, W. E. (1964). The carbon dioxide related behaviour of the adults of *Orthosoma brunneum* (Forster) (Coleoptera: Cerambycidae). *Can. J. Zool.* **42**, 295-303.
- Pasche, A. and Zachariassen, K. E. (1973). Tolerance of hypoxia and hypercapnia in adult *Rhagium inquisitor* L. (Coleoptera: Cerambycidae). *Nor. Entomol. Tidsskr.* **20**, 323-324.
- Pophof, B. (1997). Olfactory responses from the sensilla coeloconica of the silkworm *Bombyx mori*. *Physiol. Entomol.* **22**, 239-248.
- Porter, S. D. (1988). Impact of temperature on colony growth and developmental rates of the ant, *Solenopsis invicta*. *J. Insect Physiol.* **34**, 1127-1133.
- Powell, R. J. and Stradling, D. J. (1986). Factors influencing the growth of the *Attamyces bromatificus*, a symbiont of Attine ants. *Trans. Br. mycol. Soc.* **87**, 205-213.

- Prelinger, D. (1940). Champagnerpfropfen- und Flaschenorgane bei den Ameisen. *Mikrokosmos* **33**, 125-127.
- Pujalte, J. C., Reca, A. R., Balabusic, A. R., Canevari, P., Cusato, L. and Fleming, V. P. (1995). Unidades Ecológicas del Parque Nacional Río Pilcomayo. In *Anales de Parques Nacionales*, vol. XVI (ed. Presidencia), pp. 185. Buenos Aires: Administración de Parques Nacionales.
- Quinlan, R. J. and Cherrett, J. M. (1978). Aspects of the symbiosis of the leaf-cutting ant *Acromyrmex octospinosus* (Reich) and its food fungus. *Ecol. Entomol.* **3**, 221-230.
- Rasch, C. and Rembold, H. (1994). Carbon-dioxide-highly attractive signal for larvae of *Helicoverpa armigera*. *Naturwissenschaften* **81**, 228-229.
- Raub, U. (1998). Die Bedeutung der Klopfsignale bei der Alarmkommunikation der Roßameise *Camponotus ligniperdus*. *Ph.D. Thesis*. Würzburg: Julius Maximilians Universität.
- Renn, M. J., Montgomery, D., Vdovin, O., Anderson, D. Z., Wieman, C. E. and Cornell, E. A. (1995). Laser-guided atoms in hollow-core optical fibres. *Physical Review Letters* **75**, 3253-3256.
- Riedl, P. (1995). Morphologie und Verteilung der Cuticularsensillen auf den Antennengeißeln von *Cataglyphis bicolor* und *C. bombycinus* (Formicidae, Hymenoptera). *Diploma Thesis*. Universität Zürich.
- Roces, F. and Núñez, J. A. (1989). Brood translocation and circadian variation of temperature preference in the ant *Camponotus mus*. *Oecologia* **81**, 33-37.
- Roces, F. and Núñez, J. A. (1995). Thermal sensitivity during brood care in workers of two *Camponotus* ant species: circadian variation and its ecological correlates. *J. Insect Physiol.* **41**, 659-669.
- Röseler, P.-F. and Röseler, I. (1984). Effects of carbon dioxide and brain cauterization on the corpora allata activity and oogenesis in bumblebees (*Bombus hypnorum* and *Bombus terrestris*). *Zool. Jb. Physiol.* **88**, 237-246.
- Rumbo, E. R. and Kaissling, K.-E. (1989). Temporal resolution of odor pulses by three types of pheromone receptor cells in *Antheraea polyphemus*. *J. Comp. Physiol. A* **165**, 281-291.
- Sachs, L. (1988). *Statistische Methoden: Planung und Auswertung*. Berlin: Springer.
- Schenk, O. (1903). Die antennalen Hautsinnesorgane einiger Lepidopteren und Hymenopteren mit besonderer Berücksichtigung der sexuellen Unterschiede. *Zool. Jahrb. Abt. Anat. Ontog. Tiere* **17**, 573-618.
- Scherba, G. (1958). Moisture regulation in the mound nests of the ant *Formica ulkei* (Emery). *Am. Mid. Nat.* **61**, 499-508.
- Schildknecht, H. and Koob, K. (1970). Plant bioregulators in the metathoracic glands of myrmicine ants. *Angewandte Chemie International Edition* **9**, 173.
- Schneider, D. (1957). Elektrophysiologische Untersuchungen von Chemo- und Mechano-rezeptoren der Antenne des Seidenspinners *Bombyx mori* L. *Z. vergl. Physiol.* **40**, 8-41.
- Schöne, H. (1983). Orientierung im Raum. Stuttgart: Wissenschaftliche Verlagsgesellschaft.

- Schönherr, J. and Bukovac, J. M. (1972). Penetration of stomata by liquids. *Plant Physiol.* **49**, 813-819.
- Seeley, T. and Heinrich, B. (1981). Regulation of temperature in the nests of social insects. In *Insect Thermoregulation* (ed. B. Heinrich): John Wiley & sons, INC.
- Seeley, T. D. (1974). Atmospheric carbon dioxide regulation in honey-bee (*Apis mellifera*) colonies. *J. Insect Physiol.* **20**, 2301-2305.
- Service, R. F. (1995). Laser is a guiding light for atoms. *Science* **270**, 914.
- Siegel, S. and Castellan, N. J. (1988). *Nonparametric statistics for the behavioural sciences*. New York: McGraw-Hill.
- Slifer, E. H. (1970). The structure of arthropod chemoreceptors. *Ann. Rev. Entomol.* **15**, 121-142.
- Sokal, R. R. and Rohlf, F. J. (1995). *Biometry*. New York: W. H. Freeman and Company.
- Stahel, G. and Geijskes, D. C. (1939). Über den Bau der Nester von *Atta cephalotes* und *Atta sexdens*. *Rev. Ent.* **10**, 27-78.
- Stange, G. (1974). The influence of a carbonic anhydrase inhibitor on the function of the honeybee antennal CO<sub>2</sub> receptors. *J. Comp. Physiol.* **91**, 147-159.
- Stange, G. (1975). Linear relation between stimulus concentration and primary transduction process in insect CO<sub>2</sub> receptors. In *Olfaction and Taste V*, vol. 5 (ed. D. A. Denton and J. P. Coghlan), pp. 205-209. New York: Academic Press.
- Stange, G. (1992). High resolution measurement of atmospheric carbon dioxide concentration changes by the labial palp organ of the moth *Heliothis armigera* (Lepidoptera: Noctuidae). *J. Comp. Physiol. A* **171**, 317-324.
- Stange, G. (1996). Elevated CO<sub>2</sub> impairs oviposition by the moth *Cactoblastis cactorum* on its host, the prickly pear *Opuntia stricta*. In *Annual Report 1996* (ed. G. D. Clark-Walker, G. D. Farquhar, B. E. S. Gunning, I. G. Morgan and C. B. Osmond), pp. 65. Canberra: Research School of Biological Sciences.
- Stange, G. and Diesendorf, M. (1973). The response of the Honeybee antennal CO<sub>2</sub>-receptors to N<sub>2</sub>O and Xe. *J. Comp. Physiol.* **86**, 139-158.
- Stange, G., Monro, J., Stowe, S. and Osmond, C. B. (1995). The CO<sub>2</sub> sense of the moth *Cactoblastis cactorum* and its probable role in the biological control of the CAM plant *Opuntia stricta*. *Oecologica* **102**.
- Stange, G. and Wong, C. (1993). Moth response to climate. *Nature* **365**, 699.
- Steinbrecht, R. A. (1973). Der Feinbau olfaktorischer Sensillen des Seidenspinners (Insecta: Lepidoptera): Rezeptorfortsätze und reizleitender Apparat. *Z. Zellforsch. Mikrosk. Anat.* **139**, 533-565.
- Steinbrecht, R. A. (1997). Pore structures in insect olfactory sensilla: A review of data and concepts. *Int. J. Insect Morphol. & Embryol.* **26**, 229-245.
- Steinbrecht, R. A. (1998). Bimodal thermo- and hygrosensitive sensilla. In *Microscopic Anatomy of Invertebrates*, vol. 11B, pp. 405-422: Wiley-Liss, Inc.



- Stradling, D. J. and Powell, R. J. (1986). The cloning of more highly productive fungal strains: a factor in the speciation of fungus-growing ants. *Experientia* **42**, 962-964.
- Stryer, L. (1988). Biochemie, pp. 196. Heidelberg: Spektrum der Wissenschaft Verlag.
- Sutcliffe, J. F. (1994). Sensory bases of attractancy: morphology of Mosquito olfactory sensilla - a review. *Journal of the American Mosquito Control Association* **10**, 309-315.
- Thurm, U. and Küppers, J. (1980). Epithelial physiology of insect sensilla. In *Insect Biology in the Future* (ed. M. Locke and D. Smith), pp. 735-764. New York: Academic Press.
- Tichy, H. and Loftus, R. (1996). Hygroreceptors in insects and a spider: humidity transduction models. *Naturwissenschaften* **83**, 255-263.
- Vogel, S. (1994). Pressure and momentum. In *Life in Moving Fluids: The physical biology of flow*, pp. 50-81. Princeton: Princeton University Press.
- Vogel, S., Ellington, C. P. and Kilgore, D. L. (1973). Wind-induced ventilation of the burrow of the Prairie-dog, *Cynomys ludovicianus*. *J. Comp. Physiol.* **85**, 1-14.
- Vogt, D. (1986). Thermoregulation in bumblebees colonies. II. Behavioral and demographic variation throughout the colony cycle. *Physiol. Zool.* **59**, 60-68.
- Wallace, J. B. and Merritt, R. W. (1980). Filter-feeding ecology of aquatic insects. *Ann. Rev. Entomol.* **25**, 103-132.
- Walther, J. R. (1979). Vergleichende morphologische Betrachtung der antennalen Sensillenfelder einiger ausgewählter Aculeata. *Z. zool. Syst. u. Evolutionsforschung* **17**, 30-56.
- Warnes, M. L. and Finlayson, L. H. (1985). Response of the stable fly, *Stomoxys calcitrans* (L.) (Diptera: Muscidae), to carbon dioxide and host odours. I. Activation. *Bull. Ent. Res.* **75**, 519-527.
- Warnes, M. L. and Finlayson, L. H. (1985). Response of the stable fly, *Stomoxys calcitrans* (L.) (Diptera: Muscidae), to carbon dioxide and host odours. II. Orientation. *Bull. Ent. Res.* **75**, 717-727.
- Waterman, T. H. (1975). Expectations and achievement in comparative physiology. *J. Exp. Zool.* **194**, 309-344.
- Weber, N. A. (1959). Isothermal conditions in tropical soil. *Ecology* **40**, 153-154.
- Weber, N. A. (1966). Fungus-growing ants. *Science* **153**, 587-604.
- Weber, N. A. (1972). *Gardening ants the Attines*. Philadelphia: The American Philosophical Society.
- Wehner, R. (1984). Astronavigation in insects. *Ann. Rev. Entomol.* **29**, 277-298.
- Wehner, R. (1990). On the brink of introducing sensory ecology: Felix Santschi (1872-1940)-Tabib-en-Neml. *Behav. Ecol. Sociobiol.* **27**, 295-306.
- White, R. A., Paim, U. and Seabrook, W. D. (1974). Maxillary and labial sites of carbon dioxide-sensitive receptors of larval *Orthosoma brunneum* (Forster) (Coleoptera, Cerambycidae). *J. Comp. Physiol.* **88**, 235-246.
- Wicklein, M., Wolfrum, U. and Kaib, M. (1991). Morphological and electrophysiological characterization of olfactory sensilla on the antennae of the termite. In *Verh. Dt. Zool. Ges.*, vol. 84 (ed. H.-D. Pfannenstiel), pp. 463. Jena: Gustav Fischer Verlag.

- Wilson, E. O. (1962). Chemical communication among workers of the fire ant *Solenopsis saevissima* (Fr. Smith). 3. The experimental induction of social responses. *Anim. Behav.* **10**, 159-164.
- Yokohari, F., Tominaga, Y. and Tateda, H. (1982). Antennal hygrometers of the honey bee, *Apis mellifera* L. *Cell Tissue Res.* **226**, 63-73.
- Young, C. M. and Braithwaite, L. F. (1980). Orientation and current-induced flow in the stalked ascidian *Styela montereyensis*. *Biol. Bull.* **159**, 428-440.
- Zacharuk, R. Y. (1980). Ultrastructure and function of insect chemosensilla. *Ann. Rev. Entomol.* **25**, 27-47.
- Ziesmann, J. (1996). The physiology of an olfactory sensillum of the termite *Schedorhinotermes lamanianus*: carbon dioxide as a modulator of olfactory sensitivity. *J. Comp. Physiol. A* **179**, 123-133.