

FORWARD

**George C. Wheeler —
An Appreciation**

James C. Trager

As a child, I spent many summers in northern New Mexico, surrounded by meadows, great expanses of sagebrush desert, and the southern Rocky Mountains. This bucolic setting was short on neighborhood children and long on opportunities to observe wildlife. I was dazzled by the spectacular slaving raids of *Polyergus breviceps* and *Formica puberula* on sunny afternoons, by the great mounds of *Pogonomyrmex occidentalis* with the fleet-footed *Conomyrma* foraging fearlessly among the viciously-stinging mound builders, and by the many other common ants making up northern New Mexico's ant fauna. The enchantment has never worn off. Much later, I learned that the Taos area had been a favorite collecting spot of another myrmecologist, A. C. Cole, but I stray from the point. In the Taos city library were housed several books on insects, including W. M. Wheeler's classic ant book which I gradually read in its entirety. Unaware at the time that W. M. Wheeler was long gone, I hoped that one day I would have the opportunity to make his acquaintance.

In a sense, I have been able to do so through my association with W. M. Wheeler's student, George C. Wheeler. For me, a myrmecologist at heart since childhood, George Wheeler is a living and personal link to the "Classical Period" of North American myrmecology dominated by W. M. Wheeler. In addition to the intrinsic value of his studies of ant larvae and of several regional faunas, Dr. Wheeler (G. C., that is) has been and continues to be a valued colleague and mentor to several generations of American ant-students, who have been blessed by his longevity in a very real way. Dr. Wheeler's familiarity with and insights into the persons and issues of virtually the whole of twentieth century North American myrmecology (save, perhaps for the last ten years, when it seems none of us can keep up with it all) provides us with a unique opportunity to gain a clearer perspective on the history of our field.

The linguistic acumen of W. M. Wheeler is well-known, and it is appropriate to mention that of George Wheeler. Throughout his career, he has been a forerunner in reminding us of our grammatical and etymological p's and q's in the Greek and Latin of myrmecological nomenclature. Continuing in this tradition, he has (unknowingly) contributed Chapter 2 of this surprise birthday volume in which, among other things, he takes aim at a few "favorite" misuses of Latin in the current nomenclature of ants. (I am unable to resist making the editorial comment that I think *Crematogaster* and *pallitarsis* though etymologically questionable, are correct in grammatical form and should be retained, but that the use of the name *Monomorium viridum* should be discontinued, substituted by the slightly different but completely correct form *M. viride*. Most of us speak some Spanish and would never say "verdo" instead of "verde" for green, now would we? As fellow enthusiasts of entometyymology (I'm not sure he'll like this coining, but I'll brave it) Dr. Wheeler and I have often discussed the subject, probably to lengths that would leave most of the readers snoring. In addition to his knowledge of classical languages, Dr. Wheeler has well-developed vocabularies in several modern languages.

There can be no mention of George Wheeler without mentioning his wife and collaborator over several decades, Jeanette Wheeler. Together, the Drs. Wheeler have given us virtually all we know about the morphology of ant larvae and have synthesized virtually everything else published by others on the subject in their own papers. It is safe to say the full value of their contribution remains to be realized, but the care and uniformity of standards with which the research has been conducted ensures that it will be great. Gaps in the knowledge remain, of course, but a very firm groundwork has been laid. Both competent researchers in their own right, there can be no doubt that the teamwork of George and Jeanette Wheeler has been a boon to the laying of this groundwork, and serves as a model of cooperation to us all. While on the subject of George Wheeler's family, it is pertinent to mention his genetic contribution to myrmecology in the person of his granddaughter, Diana E. Wheeler. Dr. Wheeler, quite appropriately, but exhibiting typical humility, takes no credit for his descendant's already notable myrmecological career.

Concluding this portion of my introduction, I wish to join the other contributors to this volume in congratulating Dr. Wheeler on the occasion of his ninetieth birthday (and this with a total of six publications in the last year!). We are pleased to present this volume honoring his professional and chronological achievements, and wish for him and his wife many more productive years.

I have refrained from making my introduction biographical, deferring to Dr. Wheeler's (1986) own autobiographical treatise. This, and his other publications are listed below.

Myrmecological Publications by George C. Wheeler

- 1924 A new species on *Schizaspidia* (Eucharidae), with notes on a eulophid ant parasite. *Psyche* 31:49-56.
- 1928 The larva of *Leptanilla*. *Psyche* 35:85-91.
- 1930 Two new ants from Java. *Psyche* 37:193-201.
- 1934 New forms of *Aphaenogaster treatae* Forel from the southern states. *Psyche* 41:6-12.
- 1935 The larva of *Allomerus*. *Psyche* 42:92-98.
- 1937 New hymenopterous parasites of ants. (Chalcidoidea: Eucharidae). *Annals of the Entomological Society of America* 30:163-175.
- 1938 Are ant larvae apodous? *Psyche* 45:139-145.
- 1943 The larvae of the army ants. *Annals of the Entomological Society of America* 36:319-332.
- 1948 The larvae of the fungus-growing ants. *American Midland Naturalist* 40:664-689.
- 1950 Ant larvae of the subfamily Cerapachyinae. *Psyche* 57:102-113.
- 1952 A blast for "formicology." *Science* 115:445-446.
- 1956 Myrmecological orthoepy and onomatology. G. C. Wheeler, University Station, Grand Forks, North Dakota, 22 p.
- 1957 Don't go to the Ant. *Bios* 28:94-103.
- 1965 History of Myrmecopedology. *Bulletin of the Entomological Society of America* 11:85.
- 1972 Facsimile reprint and translation of "Intorno alle larve di alcune formiche" by Carlo Emery, *Memoria della R. Accademia delle scienze dell'Istituto di Bologna, Serie V, Tomo VIII, 10 p., 2 pl., 1899*. Desert Research Institute, University of Nevada System, Reno, Nevada. 24 p.
- 1983 A mutillid mimic of an ant. *Entomological News* 94:143-144.
- 1986 My association with William Morton Wheeler. Department of Biology, University of North Dakota, Grand Forks 58202. 16 p.

Myrmecological Publications by George C. Wheeler and Jeanette Wheeler

- 1951 The ant larvae of the subfamily Dolichoderinae. *Proceedings of the Entomological Society of Washington* 53:169-210.
- 1952 The ant larvae of the subfamily Ponerinae. Part I. *American Midland Naturalist* 48:111-144.
- 1952 The ant larvae of the subfamily Ponerinae. Part II. *American Midland Naturalist* 48:604-672.
- 1952 The ant larvae of the myrmicine tribe Crematogastrini. *Journal of the Washington Academy of Sciences* 42:248-261.
- 1952 The ant larvae of the myrmicine tribe Myrmicini. *Psyche* 59:105-125.
- 1953 The ant larvae of the myrmicine tribe Pheidolini. *Proceedings of the Entomological Society of Washington* 55:49-84.
- 1953 The ant larvae of the subfamily Formicinae. *Annals of the Entomological Society of America* 46:126-171; 175-217.
- 1953 The ant larvae of the myrmicine tribes Melissotarsini, Metaponini, Myrmicariini, and Cardiocondyliini. *Journal of the Washington Academy of Sciences* 43:185-189.
- 1953 The ant larvae of the myrmicine tribe Pheidologetini. *Psyche* 60:129-147.
- 1954 The ant larvae of the myrmicine tribe Myrmecini. *Proceedings of the Entomological Society of Washington* 56:126-138.
- 1954 The ant larvae of the myrmicine tribes Cataulacini and Cephalotini. *Journal of the Washington Academy of Sciences* 44:149-157.
- 1954 The ant larvae of the myrmicine tribes Meranoplinae, Ochetomyrmecini and Tetramoriini. *American Midland Naturalist* 52:443-452.
- 1954 The ant larvae of the myrmicine tribes Basicerotini and Dacetini. *Psyche* 61:111-145.
- 1955 The ant larvae of the myrmicine tribe Solenopsidini. *American Midland Naturalist* 54:119-141.
- 1955 The ant larvae of the myrmicine tribe Leptothoracini. *Annals of the Entomological Society of America* 48:17-29.
- 1956 The ant larvae of the subfamily Pseudomyrmecinae. *Annals of the Entomological Society of America* 49:374-398.

- 1956 *Aneuretus simoni* Emery, a major link in ant evolution. Bulletin of the Museum of Comparative Zoology at Harvard College 115:81-99 (with E. O. Wilson and T. Eisner).
- 1956 *Veromessor lobognathus* in North Dakota. Psyche 63:140-145.
- 1957 The larva of the ant genus *Dacetonops* Brown and Wilson. Breviora of the Museum of Comparative Zoology (Harvard) No. 78. 4 p.
- 1957 The larva of *Simopelta*. Proceedings of the Entomological Society of Washington 59:191-194 & 270.
- 1959 *Veromessor lobognathus*: second note. Annals of the Entomological Society of America 52:176-179.
- 1959 The larva of *Paramyrmyca*. Journal of the Tennessee Academy of Sciences 34:219-220.
- 1960 Supplementary studies on the larvae of the Myrmicinae. Proceedings of the Entomological Society of Washington 62:1-32.
- 1960 The ant larvae of the subfamily Myrmicinae. Annals of the Entomological Society of America 53:98-110.
- 1960 Techniques for the study of ant larvae. Psyche 67:87-94.
- 1963 The ants of North Dakota. University of North Dakota Press, Grand Forks. 326 p.
- 1964 The ant larvae of the subfamily Ponerinae: supplement. Annals of the Entomological Society of America 57:443-462.
- 1964 The ant larvae of the subfamily Cerapachyinae: supplement. Proceedings of the Entomological Society of Washington 66:65-71.
- 1964 The ant larvae of the subfamily Dorylinae: supplement. Proceedings of the Entomological Society of Washington 66:129-137.
- 1965 *Veromessor lobognathus*: third note. Journal of the Kansas Entomological Society 38:55-61.
- 1965 The ant larvae of the subfamily Leptanillinae. Psyche 72:24-34.
- 1966 The ant larvae of the subfamily Dolichoderinae: supplement. Annals of the Entomological Society of America 59:726-732.
- 1967 *Veromessor lobognathus*: fourth note. Journal of the Kansas Entomological Society 40:238-241.
- 1968 The ant larvae of the subfamily Formicinae: supplement. Annals of the Entomological Society of America 61:205-222.
- 1968 The rediscovery of *Manica parasitica*. Pan-Pacific Entomologist 44:71-72.

- 1969 The larva of *Acanthognathus*. *Psyche* 76:110-113.
- 1970 Ant larvae of the subfamily Formicinae: second supplement. *Annals of the Entomological Society of America* 63:648-656.
- 1970 The natural history of *Manica*. *Journal of the Kansas Entomological Society* 43:129-162, 363.
- 1970 The larva of *Apomyrma*. *Psyche* 77:276-279.
- 1971 Ant larvae of the subfamily Ponerinae: second supplement. *Annals of the Entomological Society of America* 64:1197-1217.
- 1971 The larvae of the ant genus *Bothroponera*. *Proceedings of the Entomological Society of Washington* 73:386-394.
- 1971 Ant larvae of the subfamily Myrmeciinae. *Pan-Pacific Entomologist* 47:245-256.
- 1972 Feeding and digestion in some ants (*Veromessor* and *Manica*). *BioScience* 22:82-88 (with F. W. Went).
- 1972 The subfamilies of Formicidae. *Proceedings of the Entomological Society of Washington* 74:35-45.
- 1972 Ant larvae of the subfamily Myrmicinae: second supplement on the tribes Myrmicini and Pheidolini. *Journal of the Georgia Entomological Society* 7:233-246.
- 1973 The ant larvae of six tribes: second supplement. (Hymenoptera: Formicidae: Myrmicinae). *Journal of the Georgia Entomological Society* 8:27-38.
- 1973 The ant larvae of the tribes Basicerotini and Dacetini: second supplement. *Pan-Pacific Entomologist* 49:207-214.
- 1973 Ant larvae of the subfamily Dolichoderinae: second supplement. *Pan-Pacific Entomologist* 49:396-401.
- 1973 Ant larvae of four tribes: second supplement. *Psyche* 80:70-82.
- 1973 Supplementary studies on ant larvae: Cerapachyinae, Pseudomyrmecinae and Myrmicinae. *Psyche* 80:204-211.
- 1973 Ants of Deep Canyon, Colorado Desert, California. Philip L. Boyd Deep Canyon Desert Research Center, University of California, Riverside. 162 p.
- 1974 Ant larvae of the subfamily Dorylinae: second supplement. *Journal of the Kansas Entomological Society* 47:166-172.
- 1974 Ant larvae of the subfamily Formicinae: third supplement. *Journal of the Georgia Entomological Society* 9:59-64.
- 1974 Supplementary studies on ant larvae: *Teratomyrmex*. *Psyche* 81:38-41.

- 1974 Ant larvae of the myrmicine tribe Attini: second supplement. Proceedings of the Entomological Society of Washington 76:76-81.
- 1974 Ant larvae of the subfamily Ponerinae: third supplement. Proceedings of the Entomological Society of Washington 76:278-281.
- 1974 Supplementary studies on ant larvae: *Simopone* and *Turneria*. Journal of the New York Entomological Society 82:103-105.
- 1976 Supplementary studies on ant larvae: Ponerinae. Transactions of the American Entomological Society 102:41-64.
- 1976 Ant Larvae: Review and Synthesis. Entomological Society of Washington, Memoir 7. 108 p.
- 1976 Natural History of Deep Canyon: ants, p. 139-143 in "Deep Canyon, a Desert Wilderness for Science." I. P. Ting and B. Jennings, eds. With a species photographic section by Ansel Adams. Philip L. Boyd Deep Canyon Desert Research Center, Palm Desert. University of California, Riverside. 177 p.
- 1976 Natural history of the sandhill ant, *Formica bradleyi*. Journal of the Kansas Entomological Society 49:280-303 (with D. D. Halverson).
- 1977 Supplementary studies on ant larvae: Myrmicinae. Transactions of the American Entomological Society 103:581-602.
- 1977 North Dakota ants updated. Published by the authors, Desert Research Institute, University of Nevada System, Reno 89506. 27 p.
- 1978 *Brachymyrmex musculus*, a new ant in the United States. Entomological News 89:189-190.
- 1978 Mountain ants of Nevada. Great Basin Naturalist 38:379-396.
- 1979 Larvae of the social Hymenoptera. Chapter 7, p. 287-338 in "Social Insects." Vol. I. H. R. Herman, ed. Academic Press, New York. 437 p.
- 1980 The larval and egg stages of the primitive ant *Nothomyrmecia macrops* Clark. Journal of the Australian Entomological Society 19:131-137 (with R. W. Taylor).
- 1980 Supplementary studies on ant larvae: Ponerinae, Myrmicinae and Formicinae. Transactions of the American Entomological Society 106:527-545.

- 1981 Nest of *Formica propinqua*. Great Basin Naturalist 41:389- 392.
- 1982 Air sacs in ants. Entomological News 93:25-26.
- 1982 Supplementary studies on ant larvae: Formicinae. Psyche 89:175-181.
- 1983 Supplementary studies on ant larvae: Myrmicinae. Transactions of the American Entomological Society 108:601- 610.
- 1983 The superstructures of ant nests. Transactions of the American Entomological Society 109:159-177.
- 1984 The larvae of the army ants: a revision. Journal of the Kansas Entomological Society 57:263-275.
- 1984 Myrmecological orthoepy and onomatology. 2 ed. Department of Biology, University of North Dakota, Grand Forks, North Dakota 58202. 20 p.
- 1985 A checklist of Texas ants. Prairie Naturalist 17:49- 64, 165.
- 1985 A simplified conspectus of the Formicidae. Transactions of the American Entomological Society 111:255-264.
- 1985 The larva of *Dinoponera*. Psyche 92:387-391.
- 1985 The larva of *Proatta*. Psyche 92:447-450.
- 1986 Supplementary studies on ant larvae: Ponerinae. Transactions of the American Entomological Society 112:85- 94.
- 1986 Supplementary studies on ant larvae: Ponerinae. Transactions of the American Entomological Society 112:85-94.
- 1986 Supplementary studies on ant larvae: Formicinae. Journal of New York Entomological Society 94:331-341.
- 1986 The Ants of Nevada. Natural History Museum of Los Angeles County. Los Angeles, California 90007. 148 p.
- 1986 Ten-year supplement to "Ant Larvae: Review and Synthesis." Proceedings of the Entomological Society of Washington 88:684-702.
- 1986 Supplementary studies on ant larvae: Myrmicinae. Journal of the New York Entomological Society 94:489-499.

Miscellaneous Publications by George C. Wheeler

- 1921 The phototropism of land snails. Comparative Psychology 1:149-154.
- 1924 The use of a tool by a sphecid wasp. Science 59:486.

- 1929 Heredity, hokum and *Homo sapiens*. Quarterly Journal of the University of North Dakota 20:39-49, 126-138, 333.
- 1933 *Wohlfahrtia* myiasis in North Dakota. Journal of the American Medical Association 100:487-488.
- 1947 The amphibians and reptiles of North Dakota. American Midland Naturalist 38:162-190.
- 1948 The evaluation of faculty services. Bulletin of the American Association of University Professors 34:566-575.
- 1952 Scientific names. Part 1. North Dakota Outdoors 15 (6): 13 & 15.
- 1953 Scientific names. Part 2. North Dakota Outdoors 15 (9):6 & 7.
- 1953 Scientific names. Part 3. North Dakota Outdoors 15 (11):12.
- 1954 The amphibians and reptiles of the North Dakota Badlands. Theodore Roosevelt Nature and History Association, Medora, North Dakota. 56 p.
- 1959 Laboratory Manual for General Biology. (5th ed.) Burgess Publishing Company, Minneapolis. 102 p.
- 1965 Locality by legal description. Systematic Zoology 14:66-68.
- 1987 Counterblast to sociobiology. 4 p. (To be accompanied by "Don't go to the Ant"). (Published by the author.)

Miscellaneous Publications by George C. Wheeler and Jeanette Wheeler

- 1963 The termites of North Dakota. Journal of the Kansas Entomological Society 36:190-193.
- 1964 North Dakota arachnid records. Journal of the Kansas Entomological Society 37:6-8
- 1966 The Amphibians and Reptiles of North Dakota. University of North Dakota Press, Grand Forks. 104 p.
- 1979 Larvae of some eusocial bees and wasps. Natural History Museum of Los Angeles County, Contributions in Science No. 321, 19 p.
- 1979 Larvae of the Social Hymenoptera. In H. Hermann, ed. "The Social Insects". Academic Press, N.Y. Vol. 1: pp 287-338

Book Reviews by George C. Wheeler

- 1930 Review of "The Science of Biology" (rev. ed.) by G. C. Scott. Scott. (Thomas Y. Crowell Co., New York. 1930) Quarterly Journal of the University of North Dakota 21:96-98.

- 1932 Review of "The Machines We Are: The Principles of Living Phenomena" by R. T. Hance. (Thomas Y. Crowell Co., New York.) Quarterly Journal of the University of North Dakota 22:388-389.
- 1953 Review of "The Ants of California" by T. W. Cook. (Pacific Books, Palo Alto, California. 462 p. 1953) Annals of the Entomological Society of America 46:618-619.
- 1955 Review of "Ways of the Ant" by John Crompton. (Houghton Mifflin Co., Boston. 242 p. 1954) Scientific Monthly 80:61-62.
- 1955 Review of "A Monographic Revision of the Ant Genus *Lasius* by E. O. Wilson. (Bull. Mus. Comp. Zool. Harvard Coll. 113. 205 p. 1955) Quarterly Review of Biology 30:399.
- 1957 Review of "A Textbook of Entomology" (2 ed.) by H. H. Ross. (John Wiley & Sons, New York. 519 p. 1956) Quarterly Review of Biology 32:188.
- 1957 Review of "Insects and Spiders" by C. P. Friedlander and D. Priest. (Philosophical Library, New York. 124 p. 1956) Quarterly Review of Biology 32:189.
- 1957 Review of "Annual Review of Entomology" Volume 1. E. S. Steinhaus ed. (Annual Reviews, Stanford. 466 p. 1956) Quarterly Review of Biology 32:191.
- 1959 Review of "The Ants" by William Goetsch. (Univ. Michigan Press, Ann Arbor. 169 p. 1957) Quarterly Review of Biology 34:158-159.
- 1966 Review of "All About Ants" by Peggy P. & M. W. Larson. (The World Publishing Co., Cleveland & New York. 220 p. 1965) Quarterly Review of Biology 1:324-325.
- 1968 Review of "Ants from Close Up" by L. H. Newman. (Thomas Y. Crowell Co., New York. 112 p. 1967) Quarterly Review of Biology 43:346-347.
- 1969 Review of "Lives of Social Insects" by Peggy P. and M. W. Larson (The World Publishing Co., New York & Cleveland. 226 p. 1968) Quarterly Review of Biology 44:322.
- 1972 Review of "Army Ants. A Study in Social Organization" by T. C. Schneirla. H. R. Topoff, ed. (W. H. Freeman & Co., San Francisco. 349 p. 1971) Journal of the Kansas Entomological Society 45:141-142.

- 1972 Review of "The World of Ants. A Science-Fiction Universe" by Remy Chauvin; translated by G. Ordish (Hill and Wang, New York. 216 p. 1969) Quarterly Review of Biology 47:111-112.

Myrmecological Publications by Jeanette Wheeler

- 1968 Male genitalia and the taxonomy of *Polyergus*. Proceedings of the Entomological Society of Washington 70:156-163 & 254.
- 1975 Natural history of *Veromessor pergandei*. I. The nest. Pan-Pacific Entomologist 51:205-216 (with S. W. Rissing).
- 1975 Natural history of *Veromessor pergandei*. II. Behavior. Pan-Pacific Entomologist 51:303-314 (with S. W. Rissing).
- 1976 Foraging responses of *Veromessor pergandei* to changes in seed production. Pan-Pacific Entomologist 52:63-72 (with S. W. Rissing).
- 1987 Ants in live oak galls in Texas. National Geographic Research 3:125-127 (with J. T. Longino).