

An annotated bibliography of the spinose ear tick, *Otobius megnini* (Dugès, 1883) (Acari: Ixodida: Argasidae) 1883-2000

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Abstract

Since the first published description of *Otobius megnini*, the spinose ear tick, by Dugès in 1883, its importance primarily as a pest of cattle and horses has led to the publication of numerous research articles, as well as pamphlets, leaflets, brochures and other informative printings. The following annotated bibliography is the first attempt to gather references to these writings into a single alphabetically organized document as an historical aid to those interested in furthering their knowledge or research efforts on this species. During the 132 years from the first published reference to this tick in 1868 through the year 2000, we have found and referenced 928 writings. The initial fourth of these were written during the 71 years from 1868 through 1939, with publication efforts during the second, third and fourth quartiles being quite similar and requiring 21 (1940 through 1960), 19 (1961 through 1979), and 21 years (1980 through 2000), respectively. Owing perhaps to the species originating in the southwestern U.S. and spreading southward into Mexico and South America, >90% of the citations are written in English (753 or 81.1%) or Spanish (85 or 9.3%). The remaining publications are in French (4.8%), German (2.8%), Portuguese (0.6%), Russian (0.5%), Afrikaans (0.3%), Italian (0.2%), Danish (0.1%), Croatian (0.1%) and Turkish (0.1%). Although efforts were made to reference as many publications as possible, the authors welcome additional citations and corrections to those already included.

Key words: *Otobius megnini*, (Argasidae), annotated bibliography

Introduction

The spinose ear tick, *Otobius megnini*, is a one-host ectoparasite primarily of large wandering ungulates, and is thought to have had its original center of distribution in the arid lands of southwestern North America. The fact that the larva and two nymphal stages of this tick feed deep within the ears of their host for long periods of time has allowed the distribution of this ectoparasite to countries and, indeed, continents where it was not originally part of the natural fauna. When the second stage nymphs have completed feeding, they drop from the host to the ground and molt to adults. Males and females of this tick are non-parasitic, and mating occurs off the host.

It is speculated that from its center of distribution, *O. megnini* was introduced into Central and South America on both cattle and horses, and there is anecdotal evidence that, because of the need for horses during the Boer War, *O. megnini* was imported into South Africa in the ears of horses from South America or perhaps Mexico. Another scenario is that after the Boer War, cattle from the United States infested with *O. megnini* were imported into South Africa. From South Africa, this tick has spread to Madagascar, Lesotho, Botswana, Namibia, Zimbabwe, Zambia, Malawi, Nigeria and the Democratic Republic of Congo, although some of these country records may well be independent introductions. It has also been speculated that *O. megnini* arrived in India in the mid 1930s on cattle or horses from southern Africa.

The scope of this bibliography is from the original description by Dugès in 1883 to 2000, although there is one reference from 1868 that most likely refers to the spinose ear tick. While many, if not most, authors cite the date of publication for *Otobius megnini* as 1884, we have found otherwise. The original publication by Dugès brackets the years from 1882-1884. However, M. P. Mégnin in his publication on ticks of Mexico (Mégnin, P. 1883. Les garrapatas du Mexique. *Comptes-Rendu des Séances de la Société de Biologie*, 35, 7s, 5, 489-491), cited Dugès original description and publication. The "séance" or meeting at which Mégnin presented his paper was held on July 28, 1883 under the presidency of M. Bouley, and Mégnin wrote, "M. Dugès a parfaitement reconnu que ce parasite n'appartient pas au genre *Ixodes*, mais bien au genre *Argas*...et il me fait l'honneur de me le dédier en le nommant *Argas Megnini* dans *La Natureza* T. V, p. 195, 1883, ou il le décrit." We, therefore, consider 1883 as the correct date for the publication of this taxon.

As in any study of bibliography, it is nearly impossible to find all references dealing with the subject, especially when one is working with several editions of a particular book; some editions are easily found, others impossible to locate. Also, because this tick species is an important parasite of livestock, the same is true of the numerous leaflets, pamphlets, brochures, and circulars, often in several printings, issued by the Agriculture Departments of both National and State Governments.

Where the title of an article on *O. megnini* clearly describes the content of the article, no annotation is given. Where we have not been able to actually see a particular reference to *O. megnini*, we have so indicated in the annotation. In many of the earlier publications, authors have placed *Otobius* in the genera *Argas*, *Rhynchoprium*, or *Ornithodoros*, also occasionally spelled *Ornithodoros*. In our annotations we have standardized the nomenclature and used only the generic name *Otobius*.

It is possible that one or more supplements to this bibliography may appear when additional references become available, or when corrections need to be made. Therefore, we shall be most grateful to anyone who brings to our attention, and sends us copies for annotation, any additional publications on *O. megnini*, either prior or subsequent to the year 2000, or who finds any mistake or oversight in the present text material.

Annotated bibliography (1883-2000) of the spinose ear tick, *Otobius megnini* (Dugès, 1883)

- Abbott, R. T. (1941) Spinose ear tick is found on cattle in the territory. *Hawaii Farm and Home*, 4, 14, 30. (*O. megnini* on cattle in Hawaii.)
- Ackerman, L. J. (1991) External parasites of horses. In, Colville, J. (ed.) *Diagnostic parasitology for veterinary technicians*. Goleta, California, American Veterinary Publications, Inc. pp. 119-134. (*O. megnini*, p. 126, fig. 8.)
- Ackert, J. E., Henshaw, W. R., Ricks, D. H., Schneider, A. P., Daniel, G. E., Simms, B. T. & Schwartz, B. (1944) Important external parasites of food-producing animals. *Proceedings of the 47th Annual Meeting of the U. S. Live Stock Sanitary Association* (Chicago, Dec. 2-4,

- 1943). pp. 64-73. (There have been sporadic occurrences of *O. megnini* in different areas of the U.S.A., but nothing approaching an outbreak.)
- Aguirre, D. H., Lapenta, A. O., Viñabal, A. E. & Guglielmone, A. A. (1999) Prevalencia de infestaciones por *Otobius megnini* (Acari: Argasidae) en bovinos de los valles áridos de Salta, Argentina. *Veterinaria Argentina*, 16, 331-333. (In the arid valleys of Salta, Argentina, *O. megnini* had a prevalence of 13.9% on cattle (N = 353), and 68.7% on farms (N = 16.)
- Ahrens, E. H. (1967) Controlling the gulf coast tick with insecticide impregnated ear tags. *The Cattleman*, 2 pp. (*Amblyomma maculatum* should not be confused with the soft (spinose) ear tick which can be found in the inner ear canals of cattle and horses.)
- Alcaino, H., Gorman, D. T. & Jiménez, F. (1990) Ecología del *Rhipicephalus sanguineus* (Ixodidae) en la región metropolitana de Chile. *Archivos de Medicina Veterinaria*, 22, 159-168. (Brief mention that *O. megnini* is found in Chile. The article is about *R. sanguineus*.)
- Alcock, A. (1920) *Entomology for medical officers*. 2nd ed. London, Gurney & Jackson, xv + 380 pp. (*O. megnini*, p. 321, morphology, and found in tropical and subtropical America and Africa. *O. megnini* is not cited in the first edition.)
- Alencastre, J. L. (1933) Las enfermedades parasitarias en los animales domesticos. *Cartilla (14)*, Dirección Agricultura y Ganaderia. Ministerio de Fomento, Peru, 35 pp. (*O. megnini* found on cattle in Peru.)
- Alexander, A. S. (1909) Ear ticks. [Reply to query]. *Breeder's Gazette*, 56, 1396. (A subscriber asked for information on cattle being troubled with ticks in their ears. Reply - "The ear tick (*ornithodoros* [sic] *megnini*), otherwise known as the 'spinose' tick, or 'spider' tick, is found in the South and Middle West. It causes great irritation indicated by shaking of the ears and head and general nervousness of affected animals. It seems to cause the most trouble in the horse. The best treatment is to flood out the ticks with olive oil or other bland oil. The oil closes the breathing tubes and suffocates the tick.")
- Alexander, J. O'D. (1984) *Arthropods and human skin*. Berlin, Springer-Verlag, x + 422 pp. (*O. megnini*, p. 369, incorrect data that the adult stage is found in the ears of its host; p. 371, *O. megnini* listed in a table as only found in South Africa; p. 377, cited Peacock (1958) on *O. megnini* and tick paralysis.)
- Alicata, J. E. (1941) Spinose ear tick is found on cattle in the Territory. *Hawaii Farm and Home*, Oct. 1941, 15, 30. (First record of *O. megnini* from the territory of Hawaii. The ticks were imported to Oahu from the island of Hawaii.)
- Alicata, J. E. (1947) Parasites and parasitic diseases of domestic animals in the Hawaiian Islands. *Pacific Science*, 1, 69-84. (*O. megnini* present on the islands of Hawaii, Oahu and Maui.)
- Alicata, J. E. (1950) Prevention and treatment of important cattle parasites. *College of Agriculture, University of Hawaii Agricultural Extension Service, Extension Bulletin*, 50, 1-23. (*O. megnini*, pp. 21-23, figs. 13-15; data on life cycle and prevention.)
- Alicata, J. E. (1964) Parasitic infections of man and animals in Hawaii. *Hawaii Agricultural Experiment Station, College of Tropical Agriculture, University of Hawaii Technical Bulletin*, 61, 1-138. (*O. megnini*, pp. 22, 56 (figs.), 57, 87, 98, 115.)
- Alicata, J. E. & Cuckler, A. C. (1943) Parasitology problems. *Report of the University of Hawaii Agricultural Experiment Station*, (1941-42), 44-51. (*O. megnini* was found on 45% of the cattle examined. As many as 65 ticks were found in one ear. Fully engorged nymphs molted to adults in 7-8 days after removal from the cattle. Copulation of adult ticks occurred 2 days after molting, and eggs were deposited 5 days after adult emergence.)
- Allen, R. W. (1954) Studies on sheep parasites. *Report on the Conference on Parasites and Parasitic Diseases of Domestic Ruminants*. (Montana State College, Bozeman, Sept. 15-16, 1954),

- 14-15. (Nine bighorn sheep were examined from southern New Mexico. The tick species found were *D. albipictus* and *O. megnini*.)
- Allen, R. W. (1955) Parasites of mountain sheep in New Mexico with new host records. *Journal of Parasitology*, 41, 583-587. (Post-mortem examination of 9 *Ovis canadensis mexicana* showed that 2 sheep were positive for *O. megnini*.)
- Allen, R. W. (1962) Extent and sources of parasitism in pronghorn antelope. *Transactions of the Interstate Antelope Conference (Boise, Idaho, Dec. 4-6)*, 13, 48-51. (*O. megnini*, p. 48, occurs in the ears of pronghorn antelope. It is also listed in Table 1.)
- Allen, R. W. & Kennedy, C. B. (1952) Parasites in a bighorn sheep in New Mexico. *Proceedings of the Helminthological Society of Washington*, 19, 39. (A few larval *O. megnini* were found on a dead *Ovis canadensis texiana*, San Andres Refuge, 25 miles NE of Las Cruces.)
- Alwar, V. S. (1970) Ticks and disease of livestock in India. *Madras Veterinary College Annual*, 28, 1-5. (*O. megnini* is one of the tick species recorded from India, and some observations on its life history were recorded by Sen in 1937.)
- Amberg, E. (1910) *Ornithodoros megnini* Duges [sic] im Gehörgang. *Archiv für Ohrenheilkunde*, 82, 273-274. (Dr. N. Mac A., while in Mexico from January-March, 1908 became parasitized by *O. megnini*. The tick was removed from his ear in Detroit, Michigan.)
- American Geographical Society. (1954) *Atlas of diseases. World distribution of rickettsial diseases.* Tick and mite vectors 3, 1-20, plate 12. New York, Basic Sources. (*O. megnini* infected in nature with *Coxiella burnetii* in California, and geographically distributed in Argentina, Venezuela, Belgian Congo (Democratic Republic of Congo), Cuba, India, Madagascar, Northern and Southern Rhodesia (Zambia and Zimbabwe), South Africa, and U.S.A.)
- Anderson, J. R. (1974) Symposium on reproduction of arthropods of medical and veterinary importance. II. Meeting of the sexes. *Journal of Medical Entomology*, 11, 7-19. (On p. 11 *O. megnini* in a table of Acari that mate off the host; p. 12 reference to Hooker et al. (1912) and that *O. megnini* reportedly hides in cracks and periodically stomps or rattles when she is ready to mate.)
- Annand, P. N. (1944) Report of the Chief of the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, 1943. *United States Department of Agriculture, Washington, D. C.*, 58 pp. (*O. megnini* found to occur under salt troughs on the range and in corrals.)
- Annand, P. N. (1945) Report of the Chief of the Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, 1944. *United States Department of Agriculture, Washington, D. C.*, 56 pp. (*O. megnini* killed under salt troughs by spraying them with equal parts of kerosene and motor oil, and applying non-drying adhesives impregnated with insecticides to the ears of cattle, sheep and goats. These adhesive ear patches gave protection for 90-120 days.)
- Anonymous. (1921) Spinose ear tick. *Journal of the Department of Agriculture, Union of South Africa*, 3, 15. (*O. megnini* recorded from Avoca, Cape Province. The tick was taken from the ear of a Friesland calf. This area is not considered favorable for the spinose ear tick, and it was apparently introduced.)
- Anonymous (1941) Summary for 1940. *United States Department of Agriculture Bureau of Entomology, Insect Pest Survey Bulletin*, 20, 559-591. (*O. megnini* was found on 40% of the sheep and cattle examined on the Edwards Plateau of Texas. On ranches, the ears of cattle were treated to reduce subsequent infestation by the screwworm, *Cochliomyia hominivorax*.)
- Anonymous Date? Title? *Cooperative Plant Pest Report*, 1, 351-378. (First record of *O. megnini* in Arkansas. It was found in Van Buren County. *O. megnini* reference not verified.)
- Anonymous (1953) Guide for controlling external parasites of livestock and poultry in Texas. *Texas A & M Agricultural Extension Service Bulletin C-3*, 1-7. (The spinose ear tick is picked up by livestock around mineral boxes, feed troughs or watering troughs. To eliminate these breeding

- sites, remove the boxes or troughs periodically and spray with creosote or a mixture of one-half crankcase oil and one-half kerosene.)
- Anonymous (1961) Summary of Insect Conditions - 1960. *United States Department of Agriculture, Bureau of Entomology and Plant Quarantine Cooperative Economic Insect Report*, 11, 242-256. (*O. megnini* infested a herd of native cattle in Shannon County, South Dakota, and caused damage to cattle, sheep, and sometimes pets, in several counties in Utah.)
- Anonymous (1962) Ticks. In, Research Report 1928-1961. *Entomology Laboratory, Kamloops, British Columbia Research Branch, Canada Department of Agriculture, Ottawa, Ontario*, pp. 7-10. (*O. megnini* has been shown to be a parasite of up to 50% of the deer in certain areas of British Columbia, and has caused a dozen cattle deaths recently.)
- Anonymous (1979) *Proceedings of a workshop on livestock pest management: to assess national research and extension needs for integrated pest management of insects, ticks, and mites affecting livestock and poultry*. Kansas State University, Manhattan, Kansas (March 5-7, 1979). vii + 322 pp. (*O. megnini*, pp. 45, 258, 262, 264.)
- Anonymous (1991) Tick information sheet: The spinose ear tick. *Veterinary Clinics North America Small Animal Practice*, 21, 141-143. (Gives distribution and seasonal activity, hosts and location on host, life cycle summary, and diseases. They report *O. megnini* established on the Galapagos Islands, which we cannot confirm.)
- Anthony, D. W. (1963) Arthropod vectors of some livestock and poultry diseases. *Proceedings of the 67th Annual Meeting United States Livestock Sanitary Association (Albuquerque, New Mexico)*, pp. 588-596. (*O. megnini* is a troublesome livestock pest in the southwestern United States.)
- Aragão, H. de B. (1935) Observações sobre os Ixodídeos da República Argentina. *Memórias do Instituto Oswaldo Cruz*, 30, 519-553. (*O. megnini* comprise lots 14, 24, 25, 59 and 63. The date of the original description of *O. megnini* by Dugès is incorrectly stated to be 1876.)
- Aragão, H. de B. (1936) Ixodidas brasileiros e de alguns países limitrofes. *Memórias do Instituto Oswaldo Cruz*, 31, 759-843. (*O. megnini*, p. 836, present in neighboring Argentina.)
- Aragão, H. de B. (1938) Nota sobre os Ixodídeos da República Argentina. *Memórias do Instituto Oswaldo Cruz*, 33, 319-327. (*O. megnini*, p. 319, unnumbered table.)
- Aragão, H. de B. (1939) Observaciones sobre los Ixodídeos de la República Argentina. *Novena Reunión de la Sociedad Argentina de Patología Regional del Norte (Mendoza October 1-4, 1935)*, 3, 1476-1488. (Same collection numbers for *O. megnini* as Aragón, 1935.)
- Aragão, H. de B. & Fonseca, F. da (1961) Notas de Ixodologia. VIII. Lista e chave para os representantes da fauna Ixodológica Brasileira. *Memórias do Instituto Oswaldo Cruz*, 59, 115-129, 25 pls. (*O. megnini*, pp. 119, 123.)
- Arthur, D. R. (1952) *Ticks and disease*. Oxford, Pergamon Press. xvi + 445 pp. (*O. megnini*, pp. 89-91, 142, 197, 211-212, 371, figs. 2, 32.)
- Arthur, D. R. (1952) Economic importance of ticks. *Discovery*, Dec. 1952, 379-383. (*O. megnini* and *Amblyomma maculatum* cited as 2 tick species that live on the inner surface of ears of various mammals.)
- Ash, L. S. & Oliver, Jr., J. H. (1989) Susceptibility of *Ornithodoros parkeri* (Cooley) [sic] (Acari: Argasidae) and *Dermanyssus gallinae* (DeGeer) (Acari: Dermanyssidae) to Ivermectin. *Journal of Medical Entomology*, 26, 133-139. (Twelve species of ticks in the families Ixodidae and Argasidae are susceptible to Ivermectin. Only *O. megnini* is reported to be unaffected - see Craig & Kunde.)
- August, J. R. (1988) Otitis externa. A disease of multifactorial etiology. *Veterinary Clinics of North America: Small Animal Practice*, 18, 731-742. (Larvae of *O. megnini* remain in the ear canal for 1-7 months. Larvae and nymphs may induce severe inflammation by feeding on blood and

- lymph from the skin of the ear canal.)
- Babcock, O. G. (1920) Some common parasites of livestock in Colorado. *Colorado Agricultural College Extension Bulletin*, s. 1(166A), 1-19. (*O. megnini* occurs in Colorado on stock shipped in from infected territories, and is apparently well established in southeastern Colorado.)
- Babcock, O. G. & Boughton, I. B. (1943) Sulfur-feeding tests for the control of ectoparasites of animals. *Journal of the American Veterinary Medical Association*, 103, 209-212. (Feeding sulfur to calves appeared to have no effect on *O. megnini* in the ears of these animals.)
- Bacon, M. (1953) The arthropods of medical and veterinary importance in the Columbia basin. *Washington Agricultural Experiment Stations Technical Bulletin*, 11, 1-40. (The State College of Washington collection has *O. megnini* nymphs from cattle near Quincy, Washington.)
- Bacha, W. J., Jr. (1957) The life history of *Otobius lagophilus*. *Journal of Parasitology*, 43, 560-565. (*Otobius lagophilus* has one nymphal stage as opposed to *O. megnini* which, as Brumpt has pointed out, has 2 nymphal stages.)
- Bacherer Gutierrez, R. A. (1931) Las garrapatas en el conducto auditivo externo. *Ia Conferencia Sanitaria Boliviana*, 2, 1-47. (*O. megnini*, p. 4, description; p. 47, member of the genus *Ornithodoros*.)
- Bailey, J. W. (1958) *Veterinary handbook for cattlemen*, 2nd ed., New York, Springer Publ. Co., Inc. ix + 389 pp. (In the U.S.A., *O. megnini* is pretty much limited to the southwestern states, pp. 335, 336.)
- Baker, A. S. (1999) *Mites and ticks of domestic animals. An identification guide and information source*. London, The Stationary Office. viii + 240 pp. (*O. megnini*, pp. 166, 167, fig. 64a-d; description of nymph, hosts, distribution, significance, life cycle and selected references.)
- Baker, D. W. (1946) Ticks found in New York State. *Cornell Veterinarian* 36, 84-90. (*O. megnini*, fig. 17, is often found on cattle and sometimes on horses shipped into New York State.)
- Baker, E. W. & Wharton, G. W. (1952) *An introduction to acarology*. New York, Macmillan. xiii + 465 pp. (Brief mention of *O. megnini*, pp. 138, 139.)
- Baker, J. A. F. & Stanford, G. D. (1979) Slow release devices as aids in the control of ticks infesting the ears of cattle in the Republic of South Africa. In, Rodriguez, J. G. (ed.) *Recent advances in acarology, Vol. II*. New York, Academic Press. pp. 71-77. (An article on *Rhipicephalus appendiculatus*. *O. megnini* mentioned as one of the 7 tick species infesting ears of cattle in South Africa.)
- Baker, M. K., Ducasse, F. B. W., Sutherst, R. W. & Maywald, G. F. (1989) The seasonal tick populations on traditional and commercial cattle grazed at four altitudes in Natal. *Journal of the South African Veterinary Association*, 60, 95-101. (*O. megnini* was rare and confined mostly to traditional farming areas at higher altitudes. It was active in the cooler months.)
- Balashov, Yu. S. (1961) The structure of digestive organs and blood digestion in the Argasidae. *Parazitologicheskij Sbornik Zoologicheskij Institut. Akademiya Nauk SSSR*, 20, 185-225. [In Russian; NIH translation] (The mouthparts of larval and nymphal *O. megnini* are in a terminal position, unlike most argasids. Females of *O. megnini* go through a single gonadotrophic cycle at the expense of the nymphal feeding, and die.)
- Balashov, Yu. S. & Dayter, A. B. (1965) Localization and dissemination of *Rickettsia burneti* in *Ornithodoros papillipes* Bir. In, *Doklady Na Shchestnadsatom I Semnadsatom Yezhegodnykh Chteniyakh Pamyati N. A. Kholodkovskogo, 3 Aprelya 1963 G. -3 Aprelya 1964 G.* Bey-Biyenko (ed.) *Academiya Nauk SSSR*, pp. 34-39. Moskva, Leningrad, Vsesoyuznoe Entomologicheskoe Obschestvo. (*O. megnini*, table 1 and reference to Jellison, Bell et al. 1948.)
- Banks, N. (1904) Some Arachnida from California. *Proceedings of the California Academy of Sciences*, s.3, 3, 331-370. (*O. megnini*, p. 368, found in the Mount Shasta area and in Southern

- California.)
- Banks, N. (1907) A catalogue of the Acarina, or mites, of the United States. *Proceedings of the United States National Museum*, 32, 595-625. (*O. megnini*, p. 606.)
- Banks, N. (1908) A revision of the Ixodoidea, or ticks, of the United States. *United States Department of Agriculture, Bureau of Entomology Technical Series*, No. 15, 1-61. (*O. megnini* key, p. 16; description, p. 17, pl. I., figs. 9-12, recorded from Arizona, California, Idaho, Iowa, Louisiana, Nevada, New Mexico and Texas.)
- Banks, N. (1912) New American mites. *Proceedings of the Entomological Society of Washington*, 14, 96-99. (Generic name *Otobius* proposed for *Ornithodoros megnini*.)
- Banks, N. (1915) The Acarina or mites. *United States Department of Agriculture Report*, No. 108, 1-153. (*O. megnini*, p. 56, fig. 104.)
- Barbará, B. & Dios, R. L. (1918) Contribucion al estudio de la sistematica y biologia de los Ixodidae de la República Argentina y de algunos países vecinos. *Revista del Instituto Bacteriológico del Departamento Nacional de Higiene, Buenos Aires*, 1, 285-322. (*O. megnini* frequently found in the ears of sheep, cattle and llamas, and occasionally humans, particularly children.)
- Barbará, B. & Dios, R. L. (1920) Contribucion al estudio de la sistematica y biologia de los Ixodidae de la República Argentina y de algunos países vecinos. *Revista Sociedad de la Medicina Veterinaria, Buenos Aires*, 5, 21-55. (Same data as immediately above.)
- Barroso, S. M. (1922). 1-320. (*O. megnini* reference not verified.)
- Batte, E. G. (1972) Differential diagnosis of parasitic dermatitis of cattle. *Journal of the American Veterinary Medical Association*, 161, 1265-1268. (The ear canals of cattle become filled with ear wax and *O. megnini* sucking blood. Secondary bacterial infection may result and open the danger of screw worm infestation.)
- Bay, D. E. & Harris, R. L. (1988) *Introduction to veterinary entomology*. Bryan, Texas, Stonefly Publishers. iii + 111 pp. (*O. megnini*, p. 75, fig. 9.6, incorrect statement that cottontail and jack rabbits serve as hosts for this tick. They are hosts for *O. lagophilus*.)
- Beaumont, J. H. (1943) Agricultural science on the war front. *Report Hawaii Agriculture Experiment Station*, (1941-42), 47-48. (*O. megnini* present in Hawaii.)
- Beck, J. W. & Barrett-Connor, E. (1971) *Medical parasitology*. St. Louis, C. V. Mosby Co. viii + 210 pp. (*O. megnini* found in southwestern United States and Mexico. The spiny nymphs may remain attached for months.)
- Beck, M. D., Bell, J. A., Shaw, E. W. & Huebner, R. J. (1949) Q fever studies in Southern California. II. An epidemiological study of 300 cases. *Public Health Reports*, 64, 41-56. (In the U.S.A., *Coxiella burneti* has been found to occur naturally in 4 tick species, *Amblyomma americanum*, *Dermacentor andersoni*, *D. occidentalis* and *O. megnini*.)
- Becklund, W. W. (1964) Revised check list of internal and external parasites of domestic animals in the United States and possessions and in Canada. *American Journal of Veterinary Research*, 25, 1380-1416. (*O. megnini* pp. 1386, 1391, 1395, 1404.)
- Becklund, W. W. (1968) Ticks of veterinary significance found on imports in the United States. *Journal of Parasitology*, 54, 622-628. (*O. megnini* found on antelope, gemsbok, nyala, sable antelope, and zebra from Southwest Africa (Namibia), on cattle from Mexico, and on horses from Peru and Venezuela.)
- Becklund, W. W. (1969) Ticks of veterinary significance found in imports in the United States. In, Evans, G. O. (ed.) *Proceeding of the Second International Congress of Acarology, Sutton Bonnington, England*. Budapest, Academia Kiado. p. 639. (*O. megnini* mentioned as an import.)
- Becklund, W. W. & Mitchell, F. E. (1958) Spinose ear ticks, *Otobius megnini* on cattle in Georgia. *Georgia Veterinarian*, 10, 9-11. (A farm in south-central Georgia established a cattle herd

- partly from New Mexico and partly from Virginia. For 7 years they intermixed, and 55 adult cattle were infested with *O. megnini* from a herd of 320.)
- Becklund, W. W. & Senger, C. M. (1967) Parasites of *Ovis canadensis canadensis* in Montana, with a checklist of the internal and external parasites of the Rocky Mountain bighorn sheep in North America. *Journal of Parasitology*, 53, 157-165. (*O. megnini* on bighorn sheep found in British Columbia - MacNay, 1955, 1956; Colorado - Pillmore, 1961; Montana - Cooley and Kohls, 1944; New Mexico - Allen, 1954, 1955; Allen and Kennedy, 1952.)
- Bedford, G. A. H. (1913) A tick new to South Africa. *Second Report of the Director of Research, Department of Agriculture, Union of South Africa, for 1912*, 343-344. (*O. megnini* found in the ears of cattle at Vryburg, and ears of sheep at Fauresmith, where the natives call them "Koning der Luizen," or King of the Lice.)
- Bedford, G. A. H. (1917) The spinose ear tick. *Union of South Africa Department of Agriculture Local Series*, No. 18, 1-6. (Control of *O. megnini* using an insecticidal liquid of 2 parts each of Stockholm tar and oil to one part of turpentine. Apply one teaspoon to one tablespoon in each ear, depending on the size of the animal.)
- Bedford, G. A. H. (1920) Ticks found on man and his domestic animals and poultry in South Africa. *Journal of the Department of Agriculture Union of South Africa*, 1, 317-340. (*O. megnini*, pp. 320-323, figs. 3, 4.)
- Bedford, G. A. H. (1925) The spinose ear-tick (*Ornithodoros megnini* Dugès). *Journal of the Department of Agriculture Union of South Africa*, 10, 147-153. (*O. megnini* on cattle, sheep, goats and less frequently on horses, donkeys, dogs, cats and ostriches.)
- Bedford, G. A. H. (1926) The sheep ked (*Melophagus ovinus* Linné). *Journal of the Department of Agriculture Union of South Africa*, 12, 484-490. (Like *O. megnini*, the sheep ked has only recently become an important pest in the Transvaal.)
- Bedford, G. A. H. (1927) A check-list and host-list of the external parasites found on South African Mammalia, Aves and Reptilia. *11th and 12th Report Director of Veterinary Education and Research, Union of South Africa Department of Agriculture*, 1, 705-817. (*O. megnini*, key p. 725, description p. 726.)
- Bedford, G. A. H. (1932) A synoptic check-list and host-list of the ectoparasites found on South African Mammalia, Aves, and Reptilia. *18th Report of the Director of Veterinary Services and Animal Industry, Union of South Africa*. pp. 223-523. (*O. megnini*, p. 280, found in the Cape Province, Orange Free State, Natal and recently in the Transvaal.)
- Bedford, G. A. H. (1934) South African ticks. Part I. *Onderstepoort Journal of Veterinary Research Onderstepoort Journal of Veterinary Science and Animal Industry*, 11, 49- 99. (*O. megnini*, pp. 50, 51, 56, 59-60, 77-81, figs. 27-31.)
- Bedford, G. A. H. & Graf, H. (1934) Ticks, tick-borne diseases and their eradication in South Africa. *Farming in South Africa*, November, 1934, 431-434. (*O. megnini*, p. 431, figs. 3, 4; pp. 432-433, distribution and life cycle.)
- Bedford, G. A. H. & Graf, H. (1935) Ticks, tick-borne diseases and their eradication in South Africa. *Farming in South Africa*, November, 1934, January and February, 1935. (Reprint No. 11), 1-10. (*O. megnini*, p. 1, figs. 3, 4; pp. 2-3, distribution and life cycle.)
- Bedford, G. A. H. & Graf, H. (1935) Bosluise, Siektes wat hulle oordra, en die Bestryding daarvan. *Boeredery in Sud-Afrika*, November 1934, Januarie en Februarie 1935. (Herdruk No. 11), 1-10. (Same as immediately above but in Afrikaans.)
- Bedford, G. A. H. & Graf, H. (1939) Ticks, tick-borne diseases and their eradication in South Africa. *Farming in South Africa*, March 1939. (Reprint No. 24), 1-10. (*O. megnini*, p. 1, figs., 3, 4; p. 3, distribution and life cycle.)
- Bedford, G. A. H. & Graf, H. (1939) Bosluise, Siektes wat hulle oordra, en die Bestryding daarvan.

- Boeredery in Sud-Afrika*, Maart 1939. (Herdruk No. 24), 1-10. (Same as immediately above but in Afrikaans.)
- Belding, D. L. (1965) *Textbook of parasitology*, 3rd ed. New York, Appleton-Century-Crofts. viii + 1374 pp. (*O. megnini*, p. 979, fig. 5; pp. 980-981, rarely attacks man, and has an aberrant life cycle in which the adult does not feed; p. 988, organism of anthrax transmitted by *Argas persicus*, *Ixodes ricinus*, *Boophilus decoloratus*, and *O. megnini*.)
- Bell, E. J., Parker, R. R. & Stoenner, H. G. (1949) Q fever. Experimental Q fever in cattle. *American Journal of Public Health*, 39, 478-484. (Results to date are indefinite on transmission of Q fever to cows by infected *O. megnini*.)
- Benbrook, E. A. (1954) *List of parasites of domesticated animals in North America*. Minneapolis, Burgess Publishing Co., 67 pp. (*O. megnini*, p. 67, found in ear canals and skin of horse, cattle, sheep, goat, swine, dog, cat, rabbit, deer, rarely man.)
- Benbrook, E. A. (1959) *Outline of parasites reported for domesticated animals in North America*. 5th revised ed. Ames, Iowa, Iowa State College Press, 67 pp. (*O. megnini*, p. 66, found on horse, cattle, sheep, goat, swine, dog, cat, man, coyote, deer, elk, mountain goat, mountain sheep, rabbit, ostrich.)
- Benbrook, E. A. (1963) *Outline of parasites reported for domesticated animals in North America*. 6th ed. Ames, Iowa, Iowa State University Press, 146 pp. (*O. megnini*, p. 144, found on horse, cattle, sheep, goat, swine, dog, cat, man, coyote, deer, elk, mountain goat, mountain sheep, rabbit, ostrich.)
- Bentley, G. M. (1937) Ear tick (*Ornithodoros megnini* Duges) [sic]. *Insect Pest Survey Bulletin*, 17, 328. ("The spinose ear tick has been reported at one residence in Knoxville, Tennessee, owing to a badly infested dog. The ticks are occurring in the cracks of the walls and in and around the loose joints of shelving in cabinets".)
- Bequaert, J. C. (1946) The ticks, or Ixodoidea, of the northeastern United States and eastern Canada. *Entomologica Americana (new series)* 25, 73-184. (*O. megnini*, pp. 131-132. Collections from man's ear, New York after his return from Mexico, and from a calf shipped from Texas to Ohio. Also citation of the Hagen (1887) reference.)
- Berge, T. O. & Lennette, E. H. (1953) World distribution of Q fever: Human, animal and arthropod infection. *American Journal of Hygiene*, 57, 125-143. (*O. megnini* in Table I, shown to be naturally infected with the causative agent of Q fever - citation of the Jellison, Bell *et al.* (1948) reference.)
- Beselin, O. (1927) Lebende Nympe einer Ohrzecke (*Otobius megnini*) im Gehörgang aus Bolivien zugereisten Patientin. *Archiv für Schiffs- und Tropenhygiene*, 31, 44-45. (*O. megnini* in the ear of a woman.)
- Bhaskar, C. G. & Joseph, S. A. (1985) The spinose ear tick of horse. *Centaur*, 2, 1, 9-10. (A female *O. megnini* lays 500-600 eggs in crevices or under stones; larvae hatch in 18 days or more and will feed in ears of their hosts for 7-8 months.)
- Bishopp, F. C. (1935) Ticks and the role they play in the transmission of diseases. *Smithsonian Institution Publication*, No. 3276, 389-406. (*O. megnini*, p. 399, pl. 3, fig. 1.)
- Bishopp, F. C. (1942) Some insect pests of horses and mules. In, *Keeping livestock healthy. The yearbook of agriculture*, United States Department of Agriculture. pp. 492-500. (Injury of horses by *O. megnini*, pp. 498-499.)
- Bishopp, F. C. & Hixon, H. (1936) Biology and economic importance of the gulf coast tick. *Journal of Economic Entomology*, 29, 1068-1076. (This article is about *Amblyomma maculatum*, a tick frequently found in ears of cattle and called the "gotch tick" or the "ear tick." However, the name ear tick is more commonly used for *O. megnini*. The authors incorrectly list Koch as the

- author for *O. megnini*.)
- Bishopp, F. C. and Smith, C. N. (1942) Ticks affecting dogs. In, *Keeping livestock healthy. The yearbook of agriculture*. United States Department of Agriculture. pp. 1180-1187. (Control of *O. megnini* on dogs, pp. 1185-1186.)
- Bishopp, F. C. & Trembley, H. L. (1945) The distribution and hosts of certain North American ticks. *Journal of Parasitology*, 31, 1-54. (*O. megnini*, pp. 44-45, fig. 17.)
- Black, IV, W. C. & Piesman, J. (1994) Phylogeny of hard-and soft-tick taxa (Acari: Ixodida) based on mitochondrial 16S rDNA sequences. *Proceedings of the National Academy of Sciences USA*, 91, 10034-10038. (*O. megnini*, fig. 3, appears more closely related to *Ornithodoros turicata* than to the genus *Antricola* or to the *Ornithodoros moubata* complex.)
- Black, IV, W. C., Klompen, J. S. H. & Keirans, J. E. (1997) Phylogenetic relationships among tick subfamilies (Ixodida: Ixodidae: Argasidae) based on the 18S Nuclear rDNA gene. *Molecular Phylogenetics and Evolution*, 7, 129-144. (*O. megnini*, fig. 4, is more closely related to the genus *Ornithodoros* than to the genus *Argas*.)
- Blagburn, B. L. & Lindsay, D. S. (1995) Ectoparasiticides. In, Adams, H. R. (ed.) *Veterinary pharmacology and therapeutics*, 7th ed. Ames, Iowa, Iowa State University Press. Chapt. 48, pp. 984-1003. (In table 48.10, cumaphos, chlorpyrifos, diazinon, fenvalerate and permethrin are listed for control of ear ticks on cattle. In table 48.13, lindane is listed for control of ear ticks on horses.)
- Blakemore, J. C. (1966) Macroscopic ectoparasites. *Current Veterinary Therapy, Small Animal Practice*, 1966, 147-153 (*O. megnini*, p. 153, causes otitis externa, periaul self traumatic dermatitis, pain, hysteria, and convulsions.)
- Blanchard, R. (1909) *L'insecte et l'infection*. Histoire naturelle et médicale des arthropodes pathogènes. Paris, Librairie Scientifique et Littéraire. 160 pp. (*O. megnini*, pp. 68-69, fig. 74.)
- Blickenstaff, C. C. (1965) Common names of insects approved by the Entomological Society of America. *Bulletin of the Entomological Society of America*, 11, 287-320. (*O. megnini* given the common name "ear tick" on pp 292 and 313.)
- Blood, D. A. (1963) Parasites from California bighorn sheep in southern British Columbia. *Canadian Journal of Zoology*, 41, 913-918. (A 7-year-old ewe had 58 *O. megnini* in one ear.)
- Blood, D. A. & Henderson, J. A. (1968) *Veterinary medicine*, 3rd ed. Baltimore, The Williams & Wilkins Co. xi + 927 pp. (*O. megnini*, p. 650, listed as a single host tick. There is no reference to *O. megnini* in the 1st (1960) or 2nd (1963) edition of this book.)
- Blood, D. A. & Henderson, J. A. (1974) *Veterinary medicine*, 4th ed. Baltimore, The Williams & Wilkins Co. x + 964 pp. (*O. megnini*, p. 668, listed as a tick species which causes worry only.)
- Blood, D. A., Henderson, J. A. & Radostits, O. M. with contributions by Arundel, J. H. & Gay, C. C. (1979) *Veterinary medicine. A textbook of the diseases of cattle, sheep, pigs and horses*, 5th ed. Philadelphia, Lea & Febiger. xi + 1135 pp. (*O. megnini*, p. 810, listed as a single host tick, and adults are not parasitic.)
- Blood, D. A., Radostits, O. M. & Henderson, J. A. with contributions by Arundel, J. H. & Gay, C. C. (1983) *Veterinary medicine. A textbook of the diseases of cattle, sheep, pigs and horses*, 6th ed. London, Baillière Tindall. xiv + 1310 pp. (*O. megnini*, p. 956, listed as a one host tick, and adults are not parasitic.)
- Boddicker, M. L., Huggins, E. J. & Richardson, A. H. (1971) Parasites and pesticide residues of mountain goats in South Dakota. *Journal of Wildlife Management*, 35, 94-103. (In this survey the only tick species recovered was *Dermacentor andersoni*, but *O. megnini* is listed in a table reviewing parasites from mountain goats in North America.)

- Boero, J. J. (1942) Aspectos morfológicos en la evolución de *Ornithodoros megnini* (Ixodidae-Argasinae). *Boletín No. 17 de la Division External de la Garrapata. Ministerio de Agricultura de la Nación.* (*O. megnini* reference not verified.)
- Boero, J. J. (1944) *Los ixodideos de la República Argentina.* Ministerio de Agricultura. Boletín Técnico de la Dirección General de Ganadería, Buenos Aires. 68 pp. (*O. megnini*, pp. 9-12, unnumbered figure of female.)
- Boero, J. J. (1944) Notas ixodológicas. I. *Ixodes longiscutatum*, nueva especie. II. Nueva lista de los ixodoideos argentinos y sus huéspedes. *Revista de la Asociación Médica Argentina*, 58, 353-355. (*O. megnini* found on *Bos taurus*, *Equus caballus* and *Ovis aries* in Argentina.)
- Boero, J. J. (1945) Los ixodideos de la República Argentina. *Revista de Medicina Veterinaria*, 26, 1-10. (Information on *O. megnini* as cited immediately above.)
- Boero, J. J. (1955) Los ixodoideos de la República Argentina y sus huéspedes. *Revista de la Facultad de Agronomía y Veterinaria Universidad de Buenos Aires*, 13, 505-514 [dated 1954]. (Information on *O. megnini* as cited above.)
- Boero, J. J. (1957) *Las garrapatas de la República Argentina (Acarina-Ixodoidea).* Buenos Aires, Universidad de Buenos Aires, Departamento Editorial. 113 pp. (*O. megnini*, pp. 60-62, pls. XI, XII.)
- Boero, J. J. (1965) Las garrapatas del bovino. *Revista de Medicina Veterinaria*, 46, 87-96. (*O. megnini* listed, p. 96, as one of the tick species found on cattle.)
- Bonnet, A. (1907) Recherches sur l'anatomie comparée et le développement des Ixodidés. *Annales de l'Université de Lyon, Nouvelle Série. I. Sciences, Médecine.* Fascicule 20. 180 pp. (*O. megnini*, p. 2, was one of 3 argasid species studied.)
- Bonnet, D. D. (1948) Certain aspects of medical entomology in Hawaii. *Proceedings of the Hawaiian Entomological Society*, 13, 225-233. (Hawaii has only 2 tick species, *Rhipicephalus sanguineus* and *O. megnini*.)
- Botha, P. (1992) Lyme borreliosis in southern Africa. In: Fivaz, B., Petney, T. & Horak, I. (eds.) *Tick vector biology. Medical and veterinary aspects.* Berlin, Springer. pp. 127-133. (*Borrelia burgdorferi* was not isolated from *O. megnini* in a large horse-riding school in Natal Province, South Africa, where seropositive cases were identified in 3 riders, the owner, 1 of 4 stable hands, 71 of 117 horses and 5 of 11 dogs.)
- Botha, P., Fivaz, B., Stanek, G., MacLeod, I., Böhmer L. & Hodgkinson, B. J. (1989) Lyme borreliosis in South Africa. *South African Medical Journal*, 76, 581. ("Successful identification of *B. burgdorferi* has not been possible despite examination of (*Otobius megnini*) ticks taken from animals".)
- Bowman, D. D. (1999) *Georgis parasitology for veterinarians*, 7th ed. Philadelphia, W. B. Saunders Co. xii + 414 pp. (*O. megnini*, pp. 48-49, fig. 1-63.)
- Brandborg, S. M. (1955) Life history and management of the mountain goat in Idaho. *Idaho Department of Fish and Game Wildlife Bulletin*, 2, 1-142. (Three nymphs of *O. megnini* were found in the outer ear of a female mountain goat on the Salmon River, Idaho.)
- Braun, M. (1906) *The animal parasites of man*, 3rd ed. London, John Bale, Sons and Danielsson, Ltd. 453 pp. (*O. megnini*, p. 374.)
- Breakey, E. P. & Propp, H. (1951) The spinose ear tick in Washington. *Pan-Pacific Entomologist*, 27, 59-60. (*O. megnini* collected from the ears of cattle on a ranch near Beverly, Washington.)
- Brennan, J. M. (1945) Field investigations pertinent to Bullis fever. Preliminary report on the species of ticks and vertebrates occurring at Camp Bullis, Texas. *Texas Reports on Biology and Medicine*, 3, 112-121. (Nymphs and larvae of *O. megnini* were infrequently collected on deer.)
- Broom, R. (1920) Note on the spinose ear tick (*Ornithodoros megnini* Dugès) in the human ear in

- South Africa. *Journal of Laryngology*, 35, 362-363. (*O. megnini* found in the ear of a five-year-old child.)
- Brown, J. H. (1944) The spotted fever and other Albertian ticks. *Canadian Journal of Research*, section D, 22, 36-51. (*O. megnini* is occasionally found in southern Alberta.)
- Brown, J. H. & Kohls, G. M. (1950) The ticks of Alberta with special reference to distribution. *Canadian Journal of Research*, section D, 28, 197-205. (The *O. megnini* (*O. lagophilus*) record by Hadwen in 1913 is discussed.)
- Brown, V. E. (1953) *Synopsis of medical entomology*. Ann Arbor, Michigan, Edwards Brothers. viii + 219 pp. (*O. megnini*, p. 21, fig. 15.)
- Bruce, W. G. (1952) Screw-worms. In, *Insects. The yearbook of agriculture*. Washington, D.C., United States Department of Agriculture. p. 670. ("Especially troublesome are the bites of the Gulf Coast tick or the ear tick which attack cattle, sheep and goats.")
- Brumpt, E. (1936) *Précis de parasitologie, vol. II*. Paris, Masson et Cie, pp. 1083-2139. (*O. megnini*, p. 1208, fig. 664; 1209, fig. 665.)
- Brumpt, E. (1936) Evolution expérimentale de *Ornithodoros lahorensis*. Similitude biologique des stades post-embryonnaires de cet argasiné et de ceux de *O. megnini*. Rôle pathogène éventuel. *Annales de Parasitologie Humaine et Comparée*, 14, 632-639. (*O. megnini*, pp. 633, 637.)
- Brumpt, E. (1936) Contribution à l'étude de l'évolution des ornithodores. Biologie et longévité de *Ornithodoros megnini*. *Annales de Parasitologie Humaine et Comparée*, 14, 647-651. (Life cycle of *O. megnini* from egg to egg lasted 74 days.)
- Brumpt, E. & Brumpt, L. C. (1939) Identité du spirochète des fièvres récurrentes à tiques des plateaux mexicains et du *Spirocheta turicatae*, agent de la fièvre récurrente sporadique des États-Unis. *Annales de Parasitologie Humaine et Comparée*, 17, 287-298. (*O. megnini* was collected in 1938 in Mexico, but because it is a one host tick and does not feed as adults, the authors consider that it cannot be involved in the transmission of relapsing fever, which was first diagnosed in Mexico in 1936.)
- Buchner, P. (1926) Studien an intrazellularen Symbioten VI. *Zeitschrift für Morphologie und Ökologie der Tiere*, 6, 625-644. (Primarily a study of symbionts in *Ixodes hexagonus* but *O. megnini* is cited from South Africa, p. 629.)
- Büch, G. (1948) Existence d'*Ornithodoros megnini* Dugès à Madagascar. *Bulletin de la Société de Pathologie Exotique*, 41, 567-568. (First report of *O. megnini* from Madagascar.)
- Büch, G. (1948) Tiques des animaux domestique à Madagascar. *Bulletin Agricole, Tananarive*, 1, 3-11. (*O. megnini*, pp. 4-5, figs. 1, 2.)
- Büch, G. (1949) Tiques des animaux domestique à Madagascar. *Archives Institut Pasteur Tananarive*, (1948), 60-63. (*O. megnini*, pp. 61, 63.)
- Büch, G., & Courdurier, J. (1962) Les zoonoses à Madagascar. *Revue D'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 15, 181-191. (Circumstantial evidence for *O. megnini* as a vector of equine encephalitis in Tananarive.)
- Buechner, H. K. (1960) The bighorn sheep in the United States, its past, present, and future. *Wildlife Monographs*, No. 4, 1-174. (*O. megnini*, p. 111, listed under the section on "Other Diseases and Parasites".)
- Bulman, G. M. & Walker, J. B. (1978) Un sitio de parasitación en vacunos, no registrado previamente para los estadios inmaduros de la garrapata espinosa auricular *Otobius megnini* (Dugès). *Abstract 6th Internacional Facultad Ciencias Veterinarias Universidad Nacional (La Plata, November 1978)*, p. 64. (See article immediately below.)
- Bulman, G. M. & Walker, J. B. (1979) A previously unrecorded feeding site on cattle for the immature stages of the spinose ear tick, *Otobius megnini* (Dugès, 1844)[sic]. *Journal of the South African Veterinary Association*, 50, 107-108. (*O. megnini* feeding under the tails as well as in

- the ears of dairy cattle in Bolivia.)
- Burchard, L., Larenas, N. & Ramos, P. (1984) Otoacariasis humana por *Otobius megnini* en Calama, Chile. *Boletín Chileno de Parasitología*, 39, 15-16. (*O. megnini* found in the ear cavity of 2 patients, one adult and one child) in Calama, northern Chile.)
- Burgess, N. R. H. (ed.) (1981) *John Hull Grundy's arthropods of medical importance*. Watch Cottage, Chilbolton, Hampshire, Noble Books, Ltd. 223 pp. (*O. megnini*, p. 38, occasionally found in the ears of humans; p. 43, found naturally infected with the rickettsia of Q fever.)
- Bustamante, M. E., Varela, G. & Ortiz Mariotte, C. (1946) II. Estudios de fiebre manchada en Mexico. Fiebre manchada en la laguna. *Revista del Instituto de Salubridad y Enfermedades Tropicales*, 7, 39-49. (In a survey for spotted fever rickettsia, lot numbers 13 and 14 contained 4 nymphs and 2 nymphs, respectively, of *O megnini*.)
- Buxton, P. A. (1945) The use of the new insecticide DDT in relation to the problems of tropical medicine. *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 38, 367-400. (He cites the DDT research of Rude and Smith (1944) - see below, working with *O. megnini* and *Amblyomma maculatum*.)
- Cable, R. M. (1953) *An illustrated manual of parasitology*. Revised ed., 3rd printing. Minneapolis, Burgess Publishing Co. viii + 152 pp. (*O. megnini*, p. 79.)
- Cable, R. M. (1967) *An illustrated manual of parasitology*. Revised ed., 9th printing. Minneapolis, Burgess Publishing Co. vi + 165 pp. (*O. megnini*, p. 81). [2nd 1960, 3rd 1962, 4th 1963, 5th 1964, 6th 1965, 7th 1965, 8th 1966].
- Cable, R. M. (1977) *An illustrated manual of parasitology*. 5th ed., Minneapolis, Burgess Publishing Co. ix + 275 pp. (*O. megnini*, p. 214.)
- Camicas, J.-L. & Morel, P.-C. (1978) *Cours sur les tiques Acariens, Ixodida*. Paris, Office de la Recherche Scientifique et Technique Outre-Mer, 209 pp. (*O. megnini*, p. 38.)
- Camicas, J.-L., Hervy, J.-P., Adam, F. & Morel, P.-C. (1998) *Les tiques du monde (Acarida, Ixodida). Nomenclature, stades, décrits, hôtes, répartition*. Paris, Éditions de l'Orstom, 233 pp. (*O. megnini*, p. 54, nomenclature.)
- Campana-Rouget, Y. (1954) Mue et croissance chez les Ixodoidea. *Bulletins et Mémoires de l'École Préparatoire de Médecine et de Pharmacie de Dakar*, 1, 213-239. (*O. megnini* pp. 217, 221-224, pl. 4, fig. 26.)
- Canada Department of National Defence (1984) *Insect identification*. Canadian forces manual on pest control, 3rd. ed., supplement 1. (A-MD-115-001/FP-Z01), 94 pp. (*O. megnini*, p. 24, causing toxicosis of cattle; p. 26, key.)
- Carcavallo, R. U. & Martinez, A. (1968) Comunicaciones científicas entomoloepidemiología de la República Argentina. *Investigaciones Científicas de las Fuerzas Armadas Argentinas*, 2, 145-341. (*O. megnini*, p. 257, present in the provinces of Santiago del Estero, Córdoba, San Luis, Tucumán, Catamarca and La Rioja.)
- Cary, C. A. (1907) Texas or tick fever. *Alabama Agricultural Experiment Station Bulletin*, No. 141, 109-186. (*O. megnini*, p. 145, found in the South and West, fig. 4, no. 6, 6a, b.)
- Černý, V. (1966) Nuevas garrapatas (Ixodoidea) en Aves y reptiles de Cuba. *Poeyana*, serie A, No. 26, 1-10. (*O. megnini* listed as one of the tick species found in Cuba.)
- Černý, V. (1967) Some results of tick investigations in Cuba. *Wiadomosci Parazytologiczne*, 13, 533-537. (*O. megnini*, p. 535, found on more than one continent.)
- Černý, V. (1969) The tick fauna of Cuba. *Folia Parasitologica*, 16, 279-284. (Mentions that Pérez Viguera (1934) cited one finding of *O. megnini* in the province of Havana, and later the same author (1956) reported that it was rare. Černý found no specimens in Cuba during his survey.)
- Černý, V. & Málkova, D. (1988) Results of the Czechoslovak-Cuban cooperation concerning inves-

- tigations of ticks and arboviruses transmitted by ticks. *Folia Parasitologica*, 36, 93-96. (*O. megnini* listed in table 1 as present in 1956, but not in 1987.)
- Chamberlin, W. J. (1937) The ticks of Oregon. *Oregon State College Agricultural Experiment Station Bulletin*, No. 349, 1-34. (*O. megnini*, pp. 5, 12, fig. 3. The species is rare in Oregon.)
- Chandler, A. C. (1918) *Animal parasites and human disease*. New York, John Wiley. 570 pp. (*O. megnini*, p. 365.)
- Chandler, A. C. (1922) *Animal parasites and human disease*, 2nd ed. New York, John Wiley. xiii + 572 pp. (*O. megnini*, p. 365, fig. 160, is found in southwestern United States and Mexico, and is now becoming common in parts of South Africa.)
- Chandler, A. C. (1926) *Animal parasites and human disease*, 3rd ed. New York, John Wiley. xiii + 573 pp. (Same as immediately above.)
- Chandler, A. C. (1936) *Introduction to human parasitology*, 5th ed. New York, John Wiley & Sons, Inc. xvi + 661 pp. (*O. megnini*, p. 454.)
- Chandler, A. C. (1940) *Introduction to parasitology with special reference to the parasites of man*, 6th ed. New York, John Wiley & Sons, Inc. xli + 698 pp. (*O. megnini*, p. 475 incorrectly mentioned as being parasitic on jackrabbits.)
- Chandler, A. C. (1944) *Introduction to parasitology with special reference to the parasites of man*, 7th ed. New York, John Wiley & Sons, Inc. x + 716 pp. (*O. megnini* reference not verified.)
- Chandler, A. C. (1949) *Introduction to parasitology with special reference to the parasites of man*, 8th ed. New York, John Wiley & Sons, Inc. xii + 756 pp. (*O. megnini*, p. 531, nymphs remain attached in ears of horses and other domestic animals, and sometimes children, for months; p. 550, DDT is effective against newly hatched or molted ticks but has little effect on others. However, 8% DDT in grease with 25% sulfur added is effective against *Amblyomma maculatum* and *O. megnini* in the ears of animals.)
- Chandler, A. C. (1955) *Introduction to parasitology with special reference to the parasites of man*, 9th ed. New York, John Wiley & Sons, Inc. xiv + 799 pp. (The spiny nymphs of *O. megnini*, p. 558, fig. 171D, can remain attached in the ears of horses and other animals, and sometimes children, for months. Adults are nonparasitic.)
- Chandler, A. C. & Read, C. P. (1961) *Introduction to parasitology with special reference to the parasites of man*, 10th ed. New York, John Wiley & Sons, Inc. xii + 822 pp. (*O. megnini*, p. 578, fig. 172D; p. 579, found in southwestern United States, Mexico and South Africa; nymphs feed sometimes for months, drop off, mate, and lay eggs without feeding again.)
- Chandler, A. C. & Read, C. P. (1967) *Introduction to parasitology with special reference to the parasites of man*, 10th ed. 6th printing. New York, John Wiley & Sons, Inc. xiii + 822 pp. (*O. megnini*, p. 579.)
- Chaudhuri, R. P. (1962) Field tests with some newer insecticides for the control of the one-host cattle tick *Boophilus microplus* (Canes.). *Indian Veterinary Journal*, 39, 420-428. (Brief mention that in the U.S.A., 0.5% malathion was effective against unfed and engorged *O. megnini*.)
- Chaudhuri, R. P. (1969) Ticks infesting livestock in India, their importance to leather industry and their control. In, *Biological aspects of leather manufacture*. Madras, CLRI. pp. 221-231. (*O. megnini* found in Madhya Pradesh, but not listed as an important livestock tick.)
- Chavarria Chavarria, M. (1941) Garrapatas determinadas en México. Caracteres genéricos de las más comunes. *Revista del Instituto Pecuario*, 1, 18-24. (*O. megnini* is common in Mexico and found on 100% of domestic animals.)
- Chávez G. C. & Guerrero D. C. (1960) Ecto y entoparásitos identificados en el Departamento de Parasitología de la Facultad de Medicina Veterinaria (1947-1960). *Revista del Facultad de Medic-*

- ina Veterinaria Universidad Nacional Mayor de San Marcos* (Lima), 15, 48-68. (*O. megnini*, p. 49, cited under parasites of horses, and p. 51 under parasites of cattle.)
- Chellappa, D. J. (1973) Note on spinose ear tick infestation in man and domestic animals in India and its control. *Madras Agricultural Journal*, 60, 656-658. (Two cases of *O. megnini* in the ears of humans, and parasitic on cattle and a dog in India.)
- Chellappa, D. J. & Alwar, V. S. (1972) On the incidence of *Otobius megnini* (Duges, [sic] 1883) on sheep in India. *Cheiron*, 1, 114-115. (First recovery of *O. megnini* from sheep, Tamil Nadu, India.)
- Chinery, W. A. (1973) The nature and origin of the "cement" substance at the site of attachment and feeding of adult *Haemaphysalis spinigera* (Ixodidae). *Journal of Medical Entomology*, 10, 355-362. (It is not known whether a cement substance is found at the feeding site in argasid ticks, and it would be interesting to know whether or not a cement substance is secreted by the slow-feeding nymphs of *O. megnini*.)
- Cheng, T. C. (1964) *The biology of animal parasites*. Philadelphia, W. B. Saunders. x + 727 pp. (*O. megnini*, p. 512, Pl. 18-3, fig. 4.)
- Cheng, T. C. (1973) *General parasitology*. New York, Academic Press. xxv + 965 pp. (*O. megnini*, pp. 736, 737, fig. 20.7b, 739, found in western parts of the United States, South America, South Africa, India and do doubt in other parts of the world.)
- Chodziesner, M. (1924) Beiträge zur Kenntnis der Zecken mit besonderer Berücksichtigung der Gattung *Hyalomma* Koch. *Zoologische Jahrbücher*, 47, 505-572. (*O. megnini*, p. 519, adults do not feed.)
- Chorley, J. K. (1939) Report of the Division of Entomology for the year ending 31st December, 1938. *Rhodesia Agricultural Journal*, 36, 598-622. (*O. megnini* found in the Salisbury district in May infesting the ears of cattle and sheep.)
- Christophers, S. R. (1906) The anatomy and histology of ticks. *Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India* (New Series), No. 23, 55 pp. (*O. megnini*, p. 4, briefly mentioned as attacking humans in Mexico.)
- Church, R. E. (1979) Mites and ticks, In, Donaldson, R. J. (ed.) *Parasites and western man*, Lancaster, MTP Press, Ltd. Chapt. 3, pp. 34-56. (Brief mention that *O. megnini* occasionally gets on man, p. 51.)
- Clark, R. (1938) A note on paralysis in lambs caused apparently by *Rhipicephalus evertsi*. *Journal of the South African Veterinary Medical Association*, 9, 143-145. (Brief mention of *O. megnini* in case II found on cattle.)
- Clark (1942) Montana Report, 48/49, 37. (*O. megnini* reference not verified.)
- Clifford, C. M., Kohls, G. M. & Sonenshine, D. E. (1964) The systematics of the subfamily Ornithodorinae (Acarina: Argasidae). I. The genera and subgenera. *Annals of the Entomological Society of America*, 57, 429-437. (*O. megnini*, p. 435, found in western North America, South Africa, Argentina, Brazil, Chile and India.)
- Cobbett, N. G. (1953) Small garden sprayer facilitates treating range cattle for ear ticks. *Cattleman*, 40, 154-156. (A 2 gallon garden sprayer, equipped with a modified nozzle and shoulder sling, can be used for applying lindane plus xylol to the ears of cattle in a confined chute for the control of *O. megnini*.)
- Cohen, M. (1926) Ear-bushticks as a human parasite. *South African Medical Record*, 24, 559. (Four cases of ticks in human ears. "The popular remedy for this disease is usually a mixture of milk and tobacco instilled into the ear.")
- Colas-Belcour, J. (1940) Sur l'importance numérique de la ponte de l'Ornithodore Hispano-Africain *Ornithodoros erraticus* Lucas. *Comptes Rendus des Séances de la Société de Biologie*, 134,

- 544-545. (*O. megnini* egg laying data from Hooker et al. (1912) reference.)
- Colbenson, H. P. (1962) Spinose ear tick, *Ornithodoros (Otobius) megnini* from pronghorn antelope. *Journal of Parasitology*, 48, 630.
- Colville, J., ed. (1991) *Diagnostic parasitology for veterinary technicians*. Goleta, CA, American Veterinary Publications, Inc. 266 pp. (*O. megnini*, p. 90, fig. 7.)
- Cooley, R. A. (1916) Fourteenth annual report of the State Entomologist of Montana. *University of Montana Agricultural Experiment Station Bulletin*, No. 112, 55-76. (*O. megnini*, p. 67. "One of the surprises of the past year was the discovery of the Spienose [sic] ear tick on cattle in eastern Montana".)
- Cooley, R. A. (1923) The spotted fever tick. *Dermacentor venustus* Banks. *Special Bulletin Montana State Board of Health*, No. 26, 9-17. (In 1916 *O. megnini* was found in eastern Montana in the ears of cattle. It has not been found in recent years.)
- Cooley, R. A. (1932) The Rocky Mountain wood tick. *Montana State College Agricultural Experiment Station Bulletin*, No. 268, 1-58. (*O. megnini*, p. 19, probably brought to Montana in shipments of cattle from southern states. Cooleys records of *O. megnini* from rabbits in Powderville, Montana (Parker & Wells 1916), and from rabbits near Bozeman and Musselshell are *Otobius lagophilus*.)
- Cooley, R. A. (1934) A search for tick parasites in South Africa. *Onderstepoort Journal of Veterinary Science and Animal Industry*, 3, 23-42. (*O. megnini* collected from cattle and horses in the Cape Province and Orange Free State, p. 35.)
- Cooley, R. A. & Kohls, G. M. (1940) Two new species of Argasidae (Acarina: Ixodoidea). *Public Health Reports*, 55, 925-933. (Detail of characters separating *Otobius lagophilus* from *O. megnini*. Also discussion of the collections of *O. megnini* by Hadwen in 1913 and Parker in 1916.)
- Cooley, R. A. & Kohls, G. M. (1944) The Argasidae of North America, Central America, and Cuba. *The American Midland Naturalist*, Monograph No. 1, 152 pp. (*O. megnini*, pp. 21-31, pl. 2; figs. 6-10. The United States records are from Arizona, California, Colorado, Idaho, Kansas, Kentucky, Louisiana, Missouri, Montana, Nebraska, New Mexico, North Carolina, Oregon, South Dakota, Texas, Washington, and Wyoming.)
- Cooper Research Organization (1970) *Cattle tick control*. Berkhamsted, England, Cooper McDougall & Robertson Ltd. 65 pp. (*O. megnini*, p. 8, map 6, larvae and nymphs parasitic within host's ears for several months, drop to the ground, mate and produce eggs without further feeding.)
- Corn, J. L., Kavanaugh, D. M., Osborn, D. A., Demarais, S., Miller, D. M. & Nettles, V. F. (1989) Survey for diseases and parasites in exotic ruminants in Texas. *Proceedings of the 94th Annual Meeting of the United States Animal Health Association*, (Las Vegas, Nevada), 1989, 530-540. (One axis deer, of 148 examined between November 1987 and February 1988 in Texas, was found infested with *O. megnini*.)
- Courdurier, J., Bück, G. & Quesnel, J. J. (1952) Recherches sur la "Q fever" à Madagascar. 1ère note: recherches sérologiques. *Bulletin de la Société de Pathologie Exotique*, 45, 602-604. (Brief mention that *O. megnini* and *Amblyomma variegatum* are found on Madagascar.)
- Cowan, I. McT. (1951) The diseases and parasites of big game mammals of western Canada. *Proceedings 5th Annual Game Convention, Game Department Province of British Columbia*, (Vancouver), 5, 37-74. (*O. megnini* in ear of a bighorn sheep, Ewing's Landing, British Columbia.)
- Cowdry, E. V. (1925) A group of microorganisms transmitted hereditarily in ticks and apparently unassociated with disease. *Journal of Experimental Medicine*, 41, 817-830. (Unfed larvae of *O. megnini*, p. 825, table I, were found with microorganisms, indicative of hereditary transmis-

- sion.)
- Cowdry, E. V. (1925) A group of microorganisms transmitted hereditarily in ticks and apparently unassociated with disease. *Department of Agriculture, Union of South Africa, 11-12 Report of the Director of Veterinary Education and Research*, part 1, 161-177. (Data on *O. megnini* as immediately above.)
- Cox, F., Jahraus, P. & Moore, W. (1921) A list of California Arachnids VI. Acarina or the mites and ticks. *Journal of Entomology and Zoology*, 13, 23-37. (*O. megnini*, p. 36, found in the Mount Shasta and Los Angeles areas.)
- Craig, T. M. & Kunde, J. M. (1981) Controlled evaluation of ivermectin in Shetland ponies. *American Journal of Veterinary Research*, 42, 1422-1424. (Ivermectin was ineffective in controlling nymphs of *O. megnini* in the ears of 12 yearling Shetland ponies.)
- Cuckler, A. C. (1943) Sheep parasites. *Hawaii Agricultural Experiment Station Report*, 1941-42, 49. (Of 60 sheep from the island of Kahoolawe, Hawaii, 43 were parasitized by *O. megnini*.)
- Cuckler, A. C. & Alicata, J. E. (1943) Cattle parasites. *Hawaii Agricultural Experiment Station Report*, 1941-42, 44-48. (A total of 44.8% of 357 cattle examined from Hawaii, Oahu and Maui were positive for *O. megnini*.)
- Cumming, G. S. (1998) Host preference in African ticks (Acari: Ixodida): a quantitative data set. *Bulletin of Entomological Research*, 88, 379-406. (In a review of the literature on African ticks, *O. megnini*, appendix 3, found on Artiodactyla, Carnivora and Perissodactyla. Also a literature record of this tick on land tortoises - appendix 4.)
- Cumming, G. S. (2000) Using habitat models to map diversity: pan-African species richness of ticks (Acari: Ixodida). *Journal of Biogeography*, 27, 425-440. (*O. megnini*, table 1, listed as an African tick species, but not discussed further.)
- Cupp, E. W. 1991. Biology of ticks. In, Hoskins, J. D. (guest ed.) Tick-transmitted diseases. *Veterinary Clinics of North America Small Animal Practice*, 21, 1-26. (*O. megnini*, p. 16, table 1, distribution, hosts and diseases; p. 19, feeding habits.)
- Curbelo Hernández, A. & Márquez Biscay, V. (1951) Importancia epidemiologica de las garrapatas en Cuba. *Revista de Medicina Pinareña*, 1, 77-81. (*O. megnini* found on horses in Cuba.)
- Curbelo Hernández, A. & Márquez Biscay, V. (1952) Importancia epidemiologica de las garrapatas en Cuba. *Revista Kuba de Medicina Tropical*, 8, 14-15. (Same data on *O. megnini* as immediately above.)
- Curtis, W. L. & Curtis, M. E. (1923) Otiobiosis, the ear tick disease. *Journal of the American Medical Association*, 80, 1053-1055. (Review of cases of *O. megnini* in the ears of humans, plus a new case of *O. megnini* attached to Scrapnell's membrane in the ear of a 7-year-old boy. The genus *Otobius* is misspelled *Otiobius* throughout the article.)
- Darley, M. D. (1996) *Meyer, Olsen & Schmidts essentials of parasitology*, 6th ed. Dubuque, Iowa, W. C. Brown Publishers. xii + 289 pp. (*O. megnini*, p. 195, adults have vestigial mouthparts.)
- Davis, G. E. (1942) Tick vectors and life cycles of ticks. *American Association for the Advancement of Science*, Publication No. 18, 67-76. (*O. megnini*, p. 67, reported from Peru, but not incriminated in the transmission of relapsing fever to man.)
- Deer, J. A. (1951) Control of ticks infesting cattle. *Texas A. & M. Leaflet*, L-136, 2 pages (unpaginated). (*O. megnini* can be controlled in the ears with stock 1029 applied with a one-inch paint brush.)
- Del Ponte, E. (1958) *Manual de entomologia, medica y veterinaria, argentinas*. Buenos Aires, 349 pp. (Chart No. 20, *O. megnini* found in Catamarca, Córdoba, and San Luis, Argentina.)
- Derrick, E. H. (1953) The epidemiology of "Q" fever: a review. *The Medical Journal of Australia*, 1, 245-266. (In Table I, the record by Jellison, Bell et al. (1948) of *O. megnini* infected with

Coxiella burneti is cited.)

- Descazeaux, J. (1925) Sur la présence au Chili de l'*Ornithodoros megnini*. *Bulletin de la Société de Pathologie Exotique*, 18, 408-409. (First record of *O. megnini* in Chile.)
- Diamant, G. & Strickland, R. K. (1965) *Manual on livestock ticks*. Agricultural Research Service Publication ARS 91-49. United States Department of Agriculture. 142pp. (*O. megnini*, pp. 69-70, figs. pp. 83-86.)
- Diaz-Ungria, C. (1957) Nota sobre las especies de Acarina de Venezuela. *Revista de Sanidad y Asistencia Social*, 22, 457-468. (*O. megnini* listed as one of the 39 tick species and subspecies in Venezuela.)
- Diehl, P. A., Aeschlimann, A. & Obenchain, F. D. (1981) Tick reproduction: oogenesis and oviposition, In, Obenchain, F. D. & Galun, R. (eds.) *Physiology of ticks*. Oxford, Pergamon Press. pp. 277-350. (*O. megnini* mates off the host as late as 18 months after dropping, and then females lay up to 1,800 eggs in small batches over several months.)
- Diffloth, P. (1931) Affections parasitaires dangereuses de mouton: La gale-le ver des narines. *La Vie Agricole et Rurale*, 20, 229-232. (*O. megnini* reference not verified.)
- Dikmans, G. (1945) Check list of the internal and external animal parasites of domestic animals in North America. *American Journal of Veterinary Research* 6, 211-241. (*O. megnini* listed in Tables 2, 4, 6, 8, & 10, as an external parasite of horses, mules & asses (2), cattle (4), swine (6), sheep & goats (8) and dogs & cats (10).)
- Dingler, L. A. (1939) Manera de distinguir las garrapatas que transmiten la piroplasmosis bovina o ranilla, de aquellas que nunca la transmiten. *El Agricultor Mexicano*, 55, 24-26. (*O. megnini* is a common tick in the ears of cattle, horses, sheep and dogs. Each monthly issue of this journal has the same pagination. This article appeared in the June issue.)
- Dios, R. L. & Knopoff, R. (1930) Sobre Ixodoidea de la República Argentina. *Revista de la Sociedad Argentina de Biología*, 6, 593-627. (*O. megnini*, pp. 621-626, 5 unnumbered figures.)
- Dios, R. L. & Knopoff, R. (1931) Les Ixodoidés de la République Argentine. *Compte Rendu des Séances de la Société de Biologie*, 106, 393-394. (*O. megnini* parasitic on sheep, cattle, llamas and even humans in Tucuman, Salta and Catamarca, Argentina.)
- Dios, R. L. & Knopoff, R. (1934) Sobre Ixodoidea de la República Argentina. *Revista del Instituto Bacteriológico del Departamento Nacional de Higiene*, 6, 359-412. (*O. megnini*, pp. 404-407, fig. 8, found on cattle.)
- Dobson, S. J. & Barker, S. C. (1999) Phylogeny of the hard ticks (Ixodidae) inferred from 18S rRNA indicates that the genus *Aponomma* is paraphyletic. *Molecular Phylogenetics and Evolution*, 11, 288-295. (*O. megnini* briefly mentioned - fig. 1 from Black et al., 1997; p. 289, fig. 2, but not important to the results of this publication.)
- Donoso Barros, R. (1954) Ixodoidea de Chile. *Revista Chilena de Entomología*, 3, 132-134. (*O. megnini* listed as one of 9 species of Ixodida found in Chile.)
- Doss, M. A. & Anastos, G. (1977) Ticks and tickborne diseases. III. Checklist of families, genera, species, and subspecies of ticks. *Index-catalogue of medical and veterinary zoology. Special publication* No. 3. Washington, D. C., United States Department of Agriculture. 97 pp. (*O. megnini*, p. 55.)
- Doss, M. A., Farr, M. A., Roach, K. F. & Anastos, G. (1974) Ticks and tickborne diseases. I. Genera and species of ticks. Part 3. Genera O-X. *Index-Catalogue of Medical and Veterinary Zoology. Special Publication* No. 3. Washington, D. C., United States Department of Agriculture. 329 pp. (*O. megnini*, pp. 126-129.)
- Doss, M. A., Farr, M. A., Roach, K. F. & Anastos, G. (1974) Ticks and tickborne diseases. IV. Geographical distribution of ticks. *Index-Catalogue of Medical and Veterinary Zoology. Special Publication* No. 3. Washington, D. C., United States Department of Agriculture. 648 pp. (*O.*

- megnini* is listed under the various countries where this tick is found.)
- Dove, W. E. (1938) Screwworm control. *United States Department of Agriculture Leaflet*, 162, 1-6. (*O. megnini* found in arid sections of the Southwest; attaches deep in the ears of cattle and the resultant wound leads to screwworm infestations.)
- Dove, W. E. (1943) Screwworm control. *United States Department of Agriculture Leaflet*, 162 (revised), 1-6. (Same as immediately above.)
- Drewek, J., Jr. (1980) *Behavior, population structure, parasitism, and other aspects of coyote ecology in southern Arizona*. Ph.D. dissertation, University of Arizona, Tucson, Arizona. 277 pp. (Of the ectoparasites infesting coyotes, the only tick species found was *O. megnini*.)
- Drummond, R. O. (1964) Tests with insecticides for the control of the spinose ear tick, *Otobius megnini* in cattle. *Folia Entomologica Mexicana*, (7-8), 70-71 [abstract]. (Of a number of insecticides and formulations tested on the ears of cattle for control of larval and nymphal *O. megnini*, coumaphos (Co-ral) dust appeared the most effective.)
- Drummond, R. O. (1967) Seasonal activity of ticks (Acarina: Metastigmata) on cattle in southwestern Texas. *Annals of the Entomological Society of America* 60, 439-447. (Although argasid ticks do not have seasonal fluctuations that are as well defined as ixodids, *O. megnini* in central Texas appears to have a peak of activity in late summer-early fall.)
- Drummond, R. O. (1985) Effectiveness of Ivermectin for control of arthropod pests of livestock. *Southwest Entomologist Supplement*, 7, 34-42. (Ivermectin is effective for controlling arthropod pests of livestock. However, it is not an effective control measure for nymphs of *O. megnini* in the ears of cattle and horses.)
- Drummond, R. O. (1985) New methods of applying drugs for the control of ectoparasites. *Veterinary Parasitology* 18, 111-119. (Insecticides in oil or as aerosols can be applied into the ears of cattle to control *O. megnini*.)
- Drummond, R. O., George, J. E. & Kunz, S. E. (1988) *Control of arthropod pests of livestock: a review of technology*. Boca Raton, Florida, C.R.C. Press. 245 pp. (*O. megnini*, p. 105, mentioned; pp. 107-108, pest control procedures; p. 110, new compounds for control; p. 117, additional pest control procedures.)
- Drummond, R. O., Whetstone, T. M. & Ernst, S. E. (1967) Insecticidal control of the ear tick in the ears of cattle. *Annals of the Entomological Society of America*, 60, 1021-1025. (Twenty-six insecticides at various concentrations and formulations were tested on the ears of cattle to control larval and nymphal *O. megnini*.)
- Dreyer, K., Fourie, L. J. & Kok, D. J. (1997) Predation of livestock ticks by chickens as a tick-control method in a resource-poor urban environment. *Onderstepoort Journal of Veterinary Research*, 64, 273-276. (*Boophilus decoloratus*, *Hyalomma marginatum rufipes*, *Rhipicephalus evertsi evertsi* and *O. megnini* were recovered from crops and gizzards of chickens at necropsy, showing that chickens are natural predators of livestock ticks.)
- Dreyer, K., Fourie, L. J. & Kok, D. J. (1998) Tick diversity, abundance and seasonal dynamics in a resource-poor urban environment in the Free State. *Onderstepoort Journal of Veterinary Research*, 65, 305-316. (In and around the urban, small-scale farming communities of Botshabelo and Thaba Nchu, adult ticks were removed from the right side of 10 cattle monthly at 5 localities. Ten tick species were identified and *O. megnini* accounted for 1.85% of the total of 244,538 ticks collected.)
- Duckworth, C. U. (1942) Division of animal industry. 23rd *Annual Report of the California Department of Agriculture Bulletin*, 31, 257-286. (*O. megnini* was one of 4 tick species found on cattle by personnel at the animal pathology laboratory in Sacramento.)
- Duckworth, C. U. (1944) Bureau of live stock disease control. 24th *Annual Report of the California*

- Department of Agriculture Bulletin*, 32, 338-350. (*O. megnini*, *Dermacentor* spp., and *Boophilus annulatus* were found on cattle by personnel at the animal pathology laboratory in Sacramento.)
- Dugès, A. (1883) Turicata y garrapata de Guanajuato. *La Naturaleza, periódico científico de la Sociedad Mexicana de Historia Natural*, 6(1882-1884), 195-198. (Original description of *Argas megnini*.)
- Dugès, A. (1892) Un nuevo ixodídeo. *Naturaleza*, 2, 164-167. (Brief mention of 2 species he described, *Argas turicata* and *Argas megnini*.)
- Dugès, A. (1902) *Trichodectes geomydis*, Osborn var. *expansus* Alf. Dug. *Memorias de la Sociedad Científica "Antonio Alzate"*, 18, 185-195. (Following the description of the subspecies of Mallophaga, the author lists and gives diagnoses of Mexican ticks, including *O. megnini*, figs. 7-12.)
- Du Toit, R. (1938) The external parasites of sheep. II. Tick pests. *Farming in South Africa*, 13, 435-440. (General article on the life cycle of *O. megnini*, but incorrectly states that there is a single nymphal stage.)
- Du Toit, R. (1942) External parasites of sheep. II. Lice and ticks. *Farming in South Africa*, 17, 251-259. (Reprint No. 22, pp. 7-14). (*O. megnini*, pp. 9-11, fig. 6.)
- Du Toit, R. (1942) Bosluise en die Siektes wat hulle Oordra. Deel I. Die Argasidae en Ixodidae. Deel II. Die Hondebosluis. Deel III. Die bestryding van bosluise. *Boerdery in Suid-Afrika*, 17, 1-23. (*O. megnini*, pp. 4-5, figs. 2a, b, table II, p. 22.)
- Du Toit, R. (1947) Ticks and tick-borne diseases. Part 1. The Argasidae and Ixodidae. Part 2. Control Measures. *Farming in South Africa*, 22, 408-423. (Reprint No. 27, pp. 1-23.) (*O. megnini*, pp. 4-5, figs. 2a, b, table p. 22.)
- Du Toit, R. & Theiler, G. (1964) Ticks and tick-borne diseases in South Africa. *Department of Agricultural Technical Services Republic of South Africa Scientific Bulletin* No. 364, 1-28. (Discussion of *O. megnini*, pp. 4-5, 24. It is not a disease transmitter but is responsible for considerable economic losses.)
- Dykstra, R. R. (1942) *Animal sanitation and disease control*. Danville, Illinois, Interstate Publishing, 558 pp. (*O. megnini*, pp.467-468.)
- Eads, R. B. (1948) Ectoparasites from a series of Texas coyotes. *Journal of Mammalogy*, 29, 268-271. (*O. megnini* listed in the text (p. 268) as one of 6 tick species collected from *Canis latrans*, but *O. megnini* is not listed in Table 1 where the other 5 tick species are cited.)
- Eads, R. B. & Campos, E. G. (1984) Human parasitism by *Otobius megnini* (Acari: Argasidae) in New Mexico, USA. *Journal of Medical Entomology*, 21, 244. (Seven cases of nymphal *O. megnini* from humans near Gallup, New Mexico.)
- Eads, R. B. & Hightower, B. G. (1951) Ectoparasites taken from Texas goats. *Journal of Economic Entomology*, 44, 287. (*O. megnini* collected in Zavala County, Texas.)
- Eads, R. B., Menzies, G. C. & Hightower, B. G. (1956) The ticks of Texas, with notes on their medical significance. *Texas Journal of Science*, 8, 7-24. (*O. megnini* found in Hale, Hayes, Fayette, Gillespie, Randall, Taylor, Travis, Uvalde, and Zavala Counties, Texas.)
- Eastman, (1944) *Memoirs South Carolina Veterinarian*, 4, (*O. megnini*, pp. 178-179, not verified.)
- Easton, E. R. (1983) The ticks of South Dakota: An annotated checklist (Acari: Ixodoidea). *Entomological News*, 94, 191-195. (Cites *O. megnini* records of Cooley and Kohls, 1944, but he states, "The lack of recent records of *O. megnini* from South Dakota as well as the permanent establishment of the parasite in neighboring states suggests that previous records probably resulted from interstate movement of livestock".)
- Eddie, B., Radovsky, F. J., Stiller, D. & Kumada, N. 1969. Psittacosis-Lymphogranuloma Venereum (PL) agents (*Bedsonia*, *Chlamydia*) in ticks, fleas, and native mammals in Califor-

- nia. *American Journal of Epidemiology*, 90, 449-460. (*O. megnini* was collected from cattle ranches in Mariposa and 2 sites in Marin Counties. Twenty-four pools (326 ticks) were tested by mouse inoculation for PL isolates. All tests were negative.)
- Eddy, G. W. & Joyce, C. R. (1942) Ticks collected on the Tama (Iowa) Indian Reservation with notes on other species. *Iowa State College Journal of Science*, 16, 539-543. (Mention of Banks's (1908) statement that *O. megnini* has been collected in Iowa at Ames and Davenport. Specimens are in the Museum of Comparative Zoology, Harvard, and in the Marx Collection of the National Museum of Natural History. The specimen deposited in the Marx Collection is now in the U. S. National Tick Collection at Georgia Southern University and is a nymph - RML 120651; Marx 14.)
- Edmunds, L. R. (1951) A check list of the ticks of Utah. *Pan-Pacific Entomologist*, 27, 23-26. (*O. megnini* resident in Utah.)
- Edwards, M. A. (1975) The chaetotaxy of the pedipalps and legs of some larval ticks (Acari: Argasidae). *Transactions of the Zoological Society of London*, 33, 1-75. (In *O. megnini*, both legs and palps show a marked setal reduction. It is assumed that this reduced setal complement may be due to the fact that the tick does not have to seek a new host for each instar. The setal patterns are illustrated.)
- Eichler, W. (1980) *Grundzüge der veterinärmedizinischen Entomologie*. Jena, Gustav Fischer Verlag. 184 pp. (*O. megnini*, p. 44, is a vector of the rickettsia of Q fever; larvae and nymphs are parasitic in the ears of domestic animals.)
- Ellis, L. L. (1952) A tentative key to the mammalian ectoparasites of the Wichita Mountains Wildlife Refuge. *Proceedings of the Oklahoma Academy of Science*, 33, 111-121. (*O. megnini* p. 113, couplet 22.)
- Ellis, L. L. (1955) A study of the ectoparasites of certain mammals in Oklahoma. *Ecology*, 36, 12-18. (*O. megnini* found on *Antilocapra americana*.)
- Escalante, J. A. & Mollinedo, L. (1989) Ocho artrópodos de interés veterinario en el Cusco. *Revista Peruana de Entomología*, 31, 46-47. (The authors report 10 female *O. megnini* in the ears of "vacunos" at Anta, Departamento del Cusco, Peru. The ticks were undoubtedly nymphs and not females.)
- Escomel, E. (1924) Essai sur la Parasitologie d' Aréquipa (Pérou) et de ses environs. *Bulletin de la Société de Pathologie Exotique*, 17, 906-925. (Recurrent fever caused by *Spirochaeta (Treponema) recurrentis* is possibly transmitted by *O. megnini* and *Argas persicus*.)
- Escomel, E. (1929) Fauna de Arequipa. *Obras Científicas del Dr. Edmundo Escomel*, Lima, 1, 367-418. (*O. megnini*, p. 379, in the external auditory canal of humans.)
- Estrada Peña, A. & Jongejan, F. (1999) Ticks feeding on humans: a review of records on human-biting Ixodoidea with special reference to pathogen transmission. *Experimental and Applied Acarology*, 23, 685-715. (Report of human paralysis caused by *O. megnini* in South Africa - see Peacock, 1958, and human ear infestation in India - see Chellappa, 1973.)
- Evenchik, Z. (1964) Q fever. In: Hoden, J. van der (ed.) *Zoonoses*. Amsterdam, Elsevier Publishing Company. pp. 302-310. (*O. megnini* infected with *Coxiella burnetii*.)
- Ewing, H. E. (1929) *A manual of external parasites*. Springfield, Illinois, Charles C. Thomas. xiv + 225 pp. (*O. megnini*, p. 74, fig. 45, with the incorrect statement that there is only one nymphal instar.)
- Ewing, S. A., Harkness, J. R., Kocan, K. M., Barker, R. W., Tyler, R. D., Cowell, R. L., Perritt, D., Rohrbach, B. W. & Morton, R. B. (1988) *Otobius megnini*: a vector for *Ehrlichia*? Abstract 222, p. 40. *Program and Abstracts of the 69th Annual Meeting of Conference of Research Workers in Animal Disease*, Chicago, Illinois. (*O. megnini* suggested as a vector of *Ehrlichia canis*; but see Ewing et al., 1990.)

- Ewing, S. A., Harkness, J. R., Kocan, K. M., Barker, R. W., Fox, J. C., Tyler, R. D., Cowell, R. L. & Morton, R. B. (1990) Failure to transmit *Ehrlichia canis* (Rickettsiales: Ehrlichieae) with *Otobius megnini* (Acari: Argasidae). *Journal of Medical Entomology*, 27, 803-806. (*O. megnini* removed from an ill child with serologic evidence of ehrlichiosis. No transmission by inoculation of a portion of *O. megnini* into a dog occurred.)
- Facchin, C. M., Gervasoni, S., Picco, E. J., Boggio, J. C. & Peralta, J. L. (1998) Efecto de la doramectina en el control de *Otobius megnini* en terneros. *Revista Fave*, 12, 1-4. (There was no significant reduction in the numbers of *O. megnini* in the ears of treated and control calves.)
- Fairchild, G. B., Kohls, G. M. & Tipton, V. J. (1966) The ticks of Panama (Acarina: Ixodoidea). In: Wenzel, R. L. and Tipton, V. J. (eds.) *Ectoparasites of Panama*. Chicago, Field Museum of Natural History. pp. 167-219. (*O. megnini* included in the key, p. 170, "as it is possible that it may eventually turn up in the drier parts of Panama.")
- Fantham, H. B., Stephens, J. W. W. & Theobald, F. V. (1916) *Animal parasitology*. London, Bale, Sons & Danielsson, Ltd. (*O. megnini* reference, p. 510, not verified.)
- Fantham, H. B., Stephens, J. W. W. & Theobald, F. V. (1920) *The animal parasites of man*. New York, William Wood and Company. xxxii + 900 pp. (*O. megnini*, p. 510, pain caused by specimens in the ears of humans, citing the Simpson article in *Lancet*, and the 1893 Townsend article. It has recently been found in South Africa (Bedford, 1913), and incorrectly stated to be found in the Sudan.)
- Fenton, F. A. (1937) The insect record for Oklahoma 1935-1936. *Proceedings of the Oklahoma Academy of Sciences*, 17, 29-31. (Among the species of animal parasites received was *O. megnini*.)
- Fielding, J. W. (1926) *Australian ticks*. Commonwealth of Australia Department of Health. Service Publication (Tropical Division) No. 9, 114 pp. (*O. megnini*, p. 16, incorrectly stated to be a two-host tick.)
- Filippova, N. A. (1966) *Argasovye Kleshchi (Argasidae)*. *Fauna SSSR*. Paukoobraznye, Vol. IV, Part 3, Moskva, Leningrad, Izvestiya Akademii Nauk, 255 pp. (*O. megnini* briefly cited, pp. 27, 48, 55, 62, 64, 74.) (In Russian.)
- Fisher, W. F. & Wilson, G. I. (1977) Precipitating antibodies in cattle infested by *Psoroptes ovis* (Acarina: Psoroptidae). *Journal of Medical Entomology*, 14, 146-151. (Extracts of 28 nymphal *O. megnini* were prepared and tested with sera of *O. megnini* infested cattle. Reactions with the *O. megnini* extracts and cattle blood extracts were considered nonspecific.)
- Fitch, C. P. (1918) Animal parasites affecting equines. *Journal of the American Veterinary Medical Association*, 53, n.s. 4, 312-330. (*O. megnini* common on horses in the southern and western areas of the United States.)
- Fivaz, B. H., Botha, P. & Cairns, L. M. (1991) A putative outbreak of equine Lyme borreliosis in Natal. *Journal of the South African Veterinary Association*, 61, 128-129. (Large numbers of *O. megnini* were found on the horses, but no *Borrelia* spp. were isolated.)
- Flechtmann, C. H. W. (1973) *Ácaros de importância médico-veterinária*. São Paulo, Livraria Nobel S. A., 192 pp. (*O. megnini*, pp. 58-63, figs. 16, 17, found in northern Brazil.)
- Flechtmann, C. H. W. (1985) *Ácaros de importância médico-veterinária*, 2nd ed. São Paulo, Livraria Nobel S. A., 192 pp. (*O. megnini* found in northern Brazil.)
- Flores Flores, R. & Menchaca Treviño, R. (1972) Evaluación de tres insecticidas sistémicos para el control de la garrapata de la oreja *Otobius megnini* (Duges) [sic] y piojos del ganado. *Folia Entomologica Mexicana*, 23/24, 90-91. (The insecticides tested were asuntol, dursban and nankor. Asuntol showed the best results.)
- Food and Agriculture Organization. (1956) Report of the joint FAO/OIE meeting on the control of

- tick-borne diseases of livestock, Rome, Italy, 23-27 July 1956. *Food and Agriculture Organization of the United Nations, Meeting Report*, No. 1956/18, 124 pp. (*O. megnini*, table 4, p. 24, misspelled *Otobius megnini* and reference to Jellison, Bell et al., 1949.)
- Food and Agriculture Organization. (1958) First meeting of the joint FAO/OIE expert panel on tick-borne diseases of livestock, London, England, 24-29 November 1958. *Food and Agriculture Organization of the United Nations, Meeting Report*, No. 1958/24, 115 pp. (*O. megnini*, p. 91, causes auricular nerve paralysis of horses in India.)
- Food and Agriculture Organization. (1966) Third meeting of the FAO/OIE expert panel on tick-borne diseases of livestock, Hamilton, Montana, U.S.A., 8-15 August 1966. *Food and Agriculture Organization of the United Nations, Meeting Report*, No. 1966/10, 70 pp. (*O. megnini*, p. 59, use 5% dust of cumaphos for the ear tick on beef cattle.)
- Foreyt, W. J. (1997) *Veterinary parasitology reference manual*, 4th ed. P. O. Box 2188CS, Pullman, Washington 99165, SCAVMA Bookstore. v + 190 pp. (*O. megnini*, p. 97, is a common tick of cattle.)
- Foreyt, W. J. & Leathers, C. W. (1986) Traumatic reticulopericarditis in a mule deer. *Journal of Wildlife Diseases*, 22, 446. (At necropsy, a female mule deer collected in Okanogan County, Washington was found to have 30 *Dermacentor albipictus*, and in the ear canals 76 *O. megnini*.)
- Fourie, L. J. & Horak, I. G. (1990) Parasites of cattle in south western Orange Free State. *Journal of the South African Veterinary Association*, 61, 27-28. (On slaughtered oxen between April 1987 and March 1988, the only argasid ectoparasite found was *O. megnini*.)
- Fowler, M. E. (1989) *Medicine and surgery of South American camelids: llama, alpaca, vicuña, guanaco*. Ames, Iowa, Iowa State University Press. vii + 391 pp. (*O. megnini*, pp. 37, 141.)
- Fox, C. (1925) *Insects and disease of man*. Philadelphia, P. Blakistons Son & Co. xii + 349 pp. (*O. megnini*, p. 188, listed in a key to American species of the genus "*Ornithodoros*".)
- Freitas, M. G., Costa, H. M. A., Costa, J. O. & Iide, P. (1978) *Entomologia e acarologia médica e veterinária*, 4th ed. Belo Horizonte, Rabelo e Brasil. 243 pp. (*O. megnini* imported into Minas Gerais on animals from New Mexico.)
- Furman, D. P. (1970) Book Review: *A manual of acarology* by G. W. Krantz. *Journal of Medical Entomology*, 7, 748. (Note of an error in the manual - *O. megnini* is cited as feeding only in the larval stage.)
- Furman, D. P. & Catts, E. P. (1980) *Manual of medical entomology*, 3rd ed. Cambridge, U.K., Cambridge University Press. 163 pp. (*O. megnini*, p. 136, nymphs common in ears of cattle.)
- Furman, D. P. & Catts, E. P. (1982) *Manual of medical entomology*, 4th ed. Cambridge, U.K., Cambridge University Press, vii + 207 pp. (*O. megnini*, p. 161, nymphs common in the ears of cattle; p. 165, fig. 19.18.)
- Furman, D. P. & Loomis, E. C. (1984) *The ticks of California*. Bulletin of the California Insect Survey. Volume 25. University of California Publications. viii + 239 pp. (*O. megnini*, pp. 23-25, figs. 95-100, map 7. Unusual collections include adults, nymphs and larvae from beneath the bark of a eucalyptus tree 12 feet above the ground, and a nymph collected from a swallows nest.)
- Gaafar, S. M. (1991) External parasites of food animals, pp. 153-184. In, Colville, J., (ed.) *Diagnostic parasitology for veterinary technicians*, Goleta, California, American Veterinary Publications, Inc. 266 pp. (*O. megnini*, pp. 171-172, fig. 13)
- Ganagarajah, M. (1976) A preliminary check-list and host list of ticks of Zambia. *National Council for Scientific Research, Lusaka, Pest Research Report*, PR 1, 1-16. (Seven genera and 59 tick species have been recorded on vertebrates in Zambia, including *O. megnini*.)

- Garrett, L. E. & Haramoto, F. H. (1967) A catalog of Hawaiian Acarina. *Proceedings of the Hawaiian Entomological Society*, 19, 381-414. (*O. megnini* on the islands of Hawaii, Kahoolawe, Maui and Oahu.)
- Gaxiola, C. S. M., Borbolla, I. J. E., Quintero, M. M. T., Rentería, G. R., Aceves, L. R., Guerrero, L. A. P., Velarde, P. J. L. & Zazueta, G. A. O. (1999) Prevalencia de *Otobius megnini* y *Anocentor nitens* en equinos del Lienzo Charro de Bachigualato y Colonia Bachigualato de Culiacán, Sinaloa, México. In, *4th Congress Internacional Parasitologia Animalas*, Puerto Vallarta, Jalisco, México, pp. 223-224. (Three equines (7.5%) were positive for *O. megnini* at Bachigualato, whereas 37 equines (92.5%) were positive at Lienzo Charro.)
- Geevarghese, G. (1983) Tick control: problems and research needs. *Quarterly Bulletin National Institute of Virology*, (new series) 1, 8-10. (The use of systemic insecticides, such as trichlorfon, famphur, imidan and fenthion, may be useful for the control of certain tick species in India, such as *O. megnini*.)
- Geevarghese, G., Fernandes, S. & Kulkarni, S. M. (1997) A checklist of Indian ticks (Acari: Ixodoidea). *Indian Journal of Animal Sciences*, 67, 566-574. (*O. megnini* is found on artiodactyls, dogs and man in the states of Madhya Pradesh, Maharashtra and Tamil Nadu.)
- Georgi, J. R., Georgi, M. E. & Theodorides, V. J. (1990) *Parasitology for veterinarians*, 5th ed. Philadelphia, W. B. Saunders Co. viii + 412. (*O. megnini*, p. 49, fig. 1-63. "One of my former students reported that he had suffered several painful attacks by *Otobius*".)
- Gerhart, L. A. (1948) Serena - the benevolent bovine tells about the new ear tick remedy. *The Cattleman*, [volume & page number unknown]. (Recommends one part benzene hexachloride, 2 parts xylol, and 17 parts pure pine oil for the control of *O. megnini* in the ears of cattle.)
- Gladney, W. J. (1978) Ticks (Acarina: Argasidae and Ixodidae). In, Bram, R. A. (compiler) *Surveillance and collection of arthropods of veterinary importance. United States Department of Agriculture Agricultural Handbook*, No. 518. Chapter XVI, pp. 102-113. (*O. megnini* has a one host life cycle and individual ticks may remain within the ear for as long as 121 days.)
- Glover, (1938) *Western Farm Life*, 40, 2 (*O. megnini* reference not verified.)
- Glover, (1941) *Western Farm Life*, 43, 8 (*O. megnini* reference not verified.)
- Goddard, J. (2000) *Physicians guide to arthropods of medical importance*. 3rd ed. Boca Raton, Florida, CRC Press, 422 pp. (Case history, pp. 314-315, of *O. megnini* attaching to the ear drum of a camper at Mexican Hat, Utah.)
- Goddard, J. (2000) *Infectious diseases and arthropods*. Totowa, New Jersey, Humana Press, xvi + 231 pp. (*O. megnini*, p. 78, fig. 2. In the index it is cited as 78f.)
- Goddard, J. & Norment, B. R. (1985) A guide to the ticks of Mississippi. *Mississippi Agricultural and Forestry Experiment Station Bulletin*, No. 935, 1-15. (*O. megnini* found in Warren County on cattle in November and December.)
- Goddard, J. & Norment, B. R. (1985) Some common ticks of Mississippi. *Mississippi Agricultural and Forestry Experiment Station Research Highlights*, 48, 1-3. (*O. megnini*, pp. 1-2.)
- Goff, M. L. (1987) A catalog of Acari of the Hawaiian Islands. *Hawaii Institute of Tropical Agriculture and Human Resources. Research Extension Series*, 075, 1-75. (*O. megnini* found on the islands of Hawaii, Kahoolawe, Maui, Molokai and Oahu.)
- Goldsmid, J. M. (1963) Ticks infesting dogs in the Salisbury area of Southern Rhodesia. *Journal of the South African Veterinary Medical Association*, 34, 609-610. (Of 931 ticks collected on dogs in what is now Harare, Zimbabwe, only 3 nymphs of *O. megnini* were found.)
- Gordon, R. M. & Lavoipierre, M. M. J. (1962) *Entomology for students of medicine*. Oxford, U.K., Blackwell Scientific Publications, 353 pp. (*O. megnini* briefly mentioned in chapter XLII as

- sometimes found in the ears of humans. Mentioned also in subsequent printings of this book in 1969, 1972 and 1976.)
- Gothe, R. (1981) Tick toxicosis of cattle. *Current Topics in Veterinary Medicine*, 6, 587-598. (Cattle paralysis is caused by the argasid species *Ornithodoros savignyi* in Nigeria and Chad and by *O. megnini* in British Columbia and California.)
- Gothe, R. (1999) *Zeckentoxikosen*. Munich, Hieronymus Buchreproduktions GmbH. 377 pp. (*O. megnini*, pp 74-76, brief life history and distribution and records of tick paralysis.)
- Gothe, R., Kunze, K. & Hoogstraal, H. (1979) The mechanism of pathogenicity in the tick paralyses. *Journal of Medical Entomology*, 16, 357-369. (*O. megnini* briefly cited as one of the 43 tick species capable of causing tick paralysis.)
- Gray, G. G. & Pence, D. B. (1979) Ectoparasites of sympatric Barbary sheep and mule deer in the Texas panhandle, U.S.A. *Journal of Medical Entomology*, 16, 448-449. (The recovery of *O. megnini* on 3 of 11 Aoudads or Barbary sheep (*Ammotragus lervia*) represents a new host record for this tick species.)
- Gregson, J. D. (1942) Notes on the laboratory rearing of some Canadian ticks (Acarina). *Proceedings of the Entomological Society of British Columbia*, 39, 32-35. (The author believes it doubtful that *O. megnini* can be bred in the laboratory.)
- Gregson, J. D. (1953) Records of the tick *Otobius megnini* (Dugès) from British Columbia. *Proceedings of the Entomological Society of British Columbia*, 49, 30. (*O. megnini* first collected in Canada in 1941.)
- Gregson, J. D. (1953) Insects, ticks and mites attacking livestock and man. *Proceedings Seventh Pacific Science Congress*, 4, 141-146. (*O. megnini* a potential pest of livestock in Canada, but to date only recorded from mountain sheep and deer in British Columbia.)
- Gregson, J. D. (1956) *The Ixodoidea of Canada*. Canada Department of Agriculture Publication 930, 92 pp. (*O. megnini*, pp. 11, 13, 15, 16, 19 (key), 26-27 (description, life history), 56.)
- Gregson, J. D. (1960) Ticks of medical importance in British Columbia. *British Columbia Medical Journal*, 2, 1-4. (*O. megnini* commonly infests wild deer and sheep and has killed cattle in British Columbia. "It is unique in that the adults have been heard to emit a distinct tapping noise. Thus, some ticks even tick!")
- Gregson, J. D. (1973) Tick paralysis. An appraisal of natural and experimental data. *Canada Department of Agriculture Monograph*, No. 9, 1-109. (Discussion of tick paralysis caused by early stages of argasid ticks, including *Ornithodoros lahorensis*, *O. savignyi*, *Argas persicus* and *O. megnini*. He cites Rich (1957) where *O. megnini* caused incoordination and death in cattle.)
- Griffin, C. E. (1981) Otitis externa. *Compendium on Continuing Education for the Practicing Veterinarian*, 3, 741-752. ("Although occasionally otitis externa is the only manifestation of infestation, there are usually other signs. This is especially true with *Sarcoptes scabiei* (Figure 2) and *Otobius megnini*, the spinous [sic] ear tick".)
- Griffiths, H. J. (1964) External parasites. In, Dunne, H. W. (ed.) *Diseases of swine*. 2nd ed. Ames, Iowa, Iowa State University Press. Chapter 30, pp. 511-523. (*O. megnini* cited p. 521, but then only general information on ticks and their control.)
- Griffiths, H. J. (1978) *A Handbook of veterinary parasitology. Domestic animals of North America*. Minneapolis, University of Minnesota Press. vii + 248 pp. (*O. megnini*, pp. 161-162, disease/infestation, host, habitat, identification, distribution and importance, life cycle, transmission, signs and pathogenicity, diagnosis, control.)
- Guberlet, J. E. (1919) *National Farmer*, 41, 3 (*O. megnini* reference not verified.)
- Guérin (1868) Corps étranger de l'oreille datant du 1er décembre 1866 (Mexique). Sorti le 4 juillet

- 1867; ayant vécu après sa sortie deux mois environ. *Gazette des Hôpitaux Civils et Militaires*, 41, 19. (Although this article was published 15 years prior to the description of *O. megnini*, its content about a foreign body in a mans ear in Mexico almost certainly refers to the spinose ear tick.)
- Guerrero, R. (1996) Las garrapatas de Venezuela (Acarina: Ixodoidea). Listado de especies y claves para su identificación. *Boletín de la Dirección de Malariología y Saneamiento Ambiental*, 36, 1-24. (The author records 3 *O. megnini* larvae from a horse in Distrito Federal.)
- Guglielmone, A. A. (1987) Garrapatas y enfermedades transmitidas por ellas: diez primeros años de estudio en la Unidad Regional de investigación en sanidad animal del noroeste Argentino. *Idia*, (463-468), 31-61. (*O. megnini*, p. 42, found in the external auditory canals of cattle and other domestic animals, in zones of precipitation of less than 600 mm per year. Although dated 1987, this publication did not appear until 1991.)
- Guglielmone, A. A. & Mangold, A. J. (1986) La distribución geográfica de *Otobius megnini* (Dugès, 1884) (Acarina: Ixodoidea: Argasidae) en la Argentina. *Veterinaria Argentina*, 3, 582-587. (*O. megnini* was collected throughout the year, but most nymphs were found in autumn and winter and larvae in the spring in areas with less than 600 mm of annual rainfall.)
- Guglielmone, A. A., Mangold, A. J. & Aufranc, C. R. (1992) *Haemaphysalis juxtakochi*, *Ixodes pararicinus* (Ixodidae) and *Otobius megnini* (Argasidae) in relation to the phytogeography of Argentina. *Annales de Parasitologie Humaine et Comparée*, 67, 91-93. (*O. megnini* found on cattle and sheep under arid and semiarid conditions, except for its presence in Espinal Province where annual rainfall is over 900 mm.)
- Guglielmone, A. A., Hadani, A., Mangold, A., Haan, L. De & Bermudez, A. (1981) Garrapatas (Ixodoidea - Ixodidae) del ganado bovino en la provincia de Salta: especies y carga en 5 zonas ecológicas. *Revista de Medicina Veterinaria Buenos Aires* 62, 194-205. (*O. megnini* found in small numbers in the Pastizales Serranos and Lerma Valley of Salta, Argentina.)
- Haddow, J. F. (1939) Title? *Report of the Imperial Veterinary Research Institute Mukteswar*, (1937-1938), 45. (*O. megnini* reference not verified.)
- Hadwen, S. (1913) Report of the Veterinary Director-General, Ottawa, Canada for the Year Ending March 31, 1912. *Department of Agriculture Canada*. Sessional Paper No. 15b, 93-99. (*O. megnini* recorded on jack rabbits from Lethbridge, Alberta. Actually *O. lagophilus* - see Cooley & Kohls, 1940.)
- Hagen, H. A. (1887) A living *Ixodes* said to have been four months in the ear of a man. *Entomologica Americana*, 3, 124-125. (See Bequaert, 1946 entry.)
- Hailey, T. L., Thomas, J. W. & Robinson, R. M. (1966) Pronghorn die-off in trans-Pecos Texas. *Journal of Wildlife Management*, 30, 488-496. (Due to malnutrition there was a die-off of pronghorn antelope in southern Texas. All antelopes examined were infested with *O. megnini*.)
- Hair, J. A. (1978) How can ticks (Ixodides) be controlled on cattle? *Research Report Oklahoma Agricultural Experiment Station*, 768, 33-37. (Tick species included are *Amblyomma americanum*, *A. maculatum*, *Dermacentor albipictus* and *O. megnini*.)
- Hair, J. A. (1997) Tick biology: key facts and practical aspects. *International Forum on Ticks and Tick-borne Diseases. A supplement to Compendium on Continuing Education for the Practicing Veterinarian*, 19, 7-9. (*O. megnini* in the waxy environment of the ear tends to repel most chemicals that are applied, resulting in inadequate exposure of this species to the product. Insecticides in light-weight oils mix more efficiently with ear waxes and afford the best approach to control.)
- Hair, J. A., Barker, R. W. & Coppock, S. (1990) Summer ticks on beef cattle. *Cooperative Extension Service, Oklahoma State University. O.S.U. extension facts*, (7006, revised), 1-4. (Tick species discussed are *Amblyomma americanum*, *A. maculatum*, *Dermacentor variabilis* and *O.*

megnini.)

- Hair, J. A., Stacey, B. R. & Teel, P. D. (1978) Evaluation of ear [sic] devices for gulf coast tick and horn fly control. *Folia Entomologica Mexicana*, 39/40, 198. (Populations of *O. megnini* declined after treatment with ear devices after one month, but this may have been due to completion of engorgement and drop off of nymphs.)
- Hall, M. C. (1920) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1150, 1-53. (Brief description and life history of *O. megnini*.)
- Hall, M. C. (1923) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330, 1-53. (*O. megnini*, pp. 13-15, fig. 8, can cause serious injury and occasionally death, especially among horses and cattle.)
- Hall, M. C. (1925) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330, 1-35. (*O. megnini* p. 9, fig. 8, found most often in the southwestern U.S.A. Photo from Imes, 1918.)
- Hall, M. C. (1928) A calendar of livestock parasites. *United States Department of Agriculture Miscellaneous Publication*, No. 25, 1-14. (*O. megnini*, fig. 1. "Animals badly infested with ear ticks (fig. 1) are likely to die late in the winter or early in the spring.")
- Hall, M. C. (1929) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330 (revised), 1-36. (*O. megnini*, p. 9, reference not verified.)
- Hall, M. C., Dickmans, G. & Wright, W. H. (1938) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330, 1-49. (Information on *O. megnini* essentially as in Hall, 1925.)
- Hall, M. C., Dickmans, G. & Wright, W. H. (1940) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330, 1-49. (Information on *O. megnini* essentially as in Hall, 1925.)
- Hall, M. C., Dickmans, G. & Wright, W. H. (1944) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, No. 1330, 1-49. (Information on *O. megnini* essentially as in Hall, 1925.)
- Hall, M. C. & Wigdor, M. (1918) Notes on the acanthocephalid and arthropod parasites of the dog in North America. *Journal of the American Veterinary Medical Association*, 53, n.s. 6, 493-500. (*O. megnini* included in a list of ticks found on dogs.)
- Hallas, T. E. (1978) Fortegnelse over danske midter (Acari). *Entomologiske Meddelelser*, 46, 27-45. (*O. megnini* is recorded from Denmark. However, the authority cited is not listed in the references, and this record should be considered either a misidentification or, perhaps, an accidental importation.)
- Harrison, B. A., Engber, B. R. & Apperson, C. S. (1997) Ticks (Acari: Ixodida) uncommonly found biting humans in North Carolina. *Journal of Vector Ecology*, 22, 6-12. (*O. megnini* found in the ear of a child living in Surry County, North Carolina, who had recently moved to the area from central Mexico.)
- Harvey, T. L. & Brethour, J. R. (1961) Effectiveness of ruelene and ronnel for ear tick compared with cattle grub control. *Journal of Economic Entomology*, 54, 814-815. (Ruelene and ronnel as applied in these tests did not control *O. megnini* by systemic action.)
- Harwood, R. F. & James, M. T. (1979) *Entomology in human and animal health*, 7th ed. New York, Macmillan. vi + 548 pp. (*O. megnini*, pp. 391-392, is widely distributed in the warmer parts of the USA and in British Columbia, Canada. It is also a serious problem in South America, South Africa and India.)
- Hearle, E. (1938) The ticks of British Columbia. *Scientific Agriculture*, 18, 341-354. (Two females cited as *Ornithodoros megnini* from jackrabbits in southern Alberta are, according to Gregson

- (1956), *Otobius lagophilus*.)
- Hearle, E. (1938) Insects and allied parasites injurious to livestock and poultry in Canada. *Farmers' Bulletin Dominion of Canada Department of Agriculture*, No. 53, 108 pp. (The record of *O. megnini*, p. 100, from jackrabbits in southern Alberta was actually *O. lagophilus*.)
- Henderson, B. L. (1940) Ear-tick and screw-worm control in the South. *Coastal Cattleman*, 6, 17. (*O. megnini* can be controlled with a contact oil, and screw-worm flies with a repellent. Bone oil appears to be effective for both the tick and the fly.)
- Herms, W. B. (1915) *Medical and veterinary entomology*, 1st ed. Macmillan, New York, xii + 393 pp. (*O. megnini*, p. 328, fig. 201, found commonly in California and other subtropical parts of the United States and Mexico.)
- Herms, W. B. (1917) Contribution to the life-history and habits of the spinose ear tick, *Ornithodoros megnini*. *Journal of Economic Entomology*, 10, 407-411. (Female lived 355 days in a glass vial at room temperature. Discussion of *O. megnini* in ear of a human.)
- Herms, W. B. (1923) *Medical and veterinary entomology*, 2nd ed. New York, Macmillan. xiv + 462 pp. (*O. megnini*, p. 386, fig. 202, nymphs drop from their hosts in midsummer or early autumn and mating takes place within a day or two of the final molt. Oviposition takes place 14-42 days after mating.)
- Herms, W. B. (1939) *Medical entomology with special reference to the health and well-being of man and animals*, 3rd ed. New York, Macmillan. xix + 582 pp. (Herms kept a female *O. megnini* alive in a pill box for 2 years and 7 months, p. 426; pp. 467-468, life cycle, damage treatment, fig. 172.)
- Herms, W. B. (1948) Ticks (Acarina-Ixodoidea) in the causation of animal disorders and as vectors of disease, with some observations on relapsing fever in California. *Proceedings 4th International Congress on Tropical Medicine and Malaria, Washington, D.C., 2*, 1645-1653. (Otocaricosis - invasion of the auditory canal is caused by *O. megnini*, and the author kept an adult female ear tick alive without food for 2 years and 7 months.)
- Herms, W. B. (1950) *Medical entomology with special reference to the health and well-being of man and animals*, 4th ed. based on the book known as *Medical and Veterinary Entomology*. New York, Macmillan. xvi + 643 pp. (*O. megnini*, p. 38, invades the ears of man and many animals; pp. 513-514, fig. 164, hosts, life history, damage and treatment.)
- Herms, W. B. (1961) *Medical entomology*, 5th ed., revised by James, M. T. New York, Macmillan. xi + 616 pp. (*O. megnini*, p. 21, invades the ears of man and many animals; p. 439, nymphs known to feed for months; p. 441, Herms kept a female *O. megnini* alive without food for 2 years, 7 months in a pill box; p. 481, distribution and life history, fig. 157.)
- Herms, W. B. & Wheeler, C. M. (1935) Tick transmission of California relapsing fever. *Journal of Economic Entomology*, 28, 846-855. (Brief mention of *O. megnini* as one of the argasid species found in California, and reference to Herms, 1917.)
- Herrero, M. V. (1989) Eficiencia reproductiva de las hembras de *Otobius megnini* (Acari: Argasidae). *Revista de Biología Tropical*, 36, 429-431. (A female *O. megnini* lays 856 plus or minus 225 eggs, with a preoviposition period of 3.2 plus or minus 1.4 days and an oviposition period of 105.4 plus or minus 18.1 days, with 20.0 plus or minus 4.8 ovipositions per female.)
- Herrero-Acosta, M. (1986) Bionomics of *Otobius megnini* Dugès, (Acari: Argasidae). Ph.D. dissertation, Oklahoma State University, Stillwater, Oklahoma. xi + 81 pp.
- Herrin, C. S. & Beck, D. E. (1965) Observations on the biology, anatomy, and morphology of *Otobius lagophilus* Cooley and Kohls. *Brigham Young University Science Bulletin Biological Series*, 6, 1-19. (*O. megnini* differentiated from *O. lagophilus*, figs. 21, 23-26, 31.)
- Hewitt, C. G. (1915) A contribution to a knowledge of Canadian ticks. *Transactions of the Royal*

- Society of Canada*, Series iii, ix, section 4, 225-239. (*O. megnini* on jackrabbits at Lethbridge, Alberta. The first record north of Oregon and Idaho. But see Hadwen, 1913.)
- Hirst, S. (1917) *Species of Arachnida and Myriopoda (scorpions, spiders, mites, ticks and centipedes) injurious to man*. London, Trustees of the British Museum. 60 pp. (*O. megnini*, pp. 41-42, fig. 18.)
- Hirst, S. (1920) *Species of Arachnida and Myriopoda (scorpions, spiders, mites, ticks and centipedes) injurious to man*. London, Trustees of the British Museum. 60 pp. (*O. megnini*, pp. 41-42, fig. 18.)
- Hoelscher, C. E. (1985) External parasites of cattle. *Texas A & Agricultural Extension Service Bulletin* B-1080, 1-24. (*O. megnini* is the only soft tick that commonly attacks cattle in Texas. It also frequently parasitizes horses, mules, sheep, goats, hogs, dogs and cats, and on several occasions has been removed from the ears of humans.)
- Hoffmann, A. (1959) Algunos aspectos sobre la biología e importancia médica de las garrapatas. *Yoliliztli*, 2, 11-21. (*O. megnini* is common in Mexico and found in the ears of its hosts.)
- Hoffmann, A. (1962) Monografía de los Ixodoidea de Mexico. I Parte. *Revista de la Sociedad Mexicana de Historia Natural*, 23, 191-307. (*O. megnini* parasitic on mules, cattle, donkeys, deer, goats, dogs and cats in the states of Aguascalientes, Baja California, Chihuahua, Coahuila, Colima, Durango, Guanajuato, Guerrero, Hidalgo, Jalisco, Mexico, Michoacan, Morelos, Oaxaca, Puebla, Sinaloa, Sonora, Tlaxcala, and Distrito Federal.)
- Hoffmann, A. (1982) Mexico. In, Prasad, V. (ed.) *History of acarology*. West Bloomfield, Michigan, Indira Publishing House. pp. 327-332. (*O. megnini*, p. 328, described from Mexico.)
- Hoffmann, A. & López-Campos, G. (2000) *Biodiversidad de los ácaros en México*. Mexico City, Conabio, Universidad Nacional Autónoma de México. 230 pp. (*O. megnini*, p. 48, is the most common argasid in Mexico, and is found in all states of the Republic.)
- Hoffmann, C. C. (1930) Monografías para la entomología medica de Mexico. *Anales del Instituto de Biología*, 1, 135-164. (*O. megnini*, pp. 151-155, figs. 14-20.)
- Holland, W. J. (1898) Concerning ticks. *Canadian Entomologist*, 30, 96-97. (Mention of a tick in the ear of a friend who slept all summer on the ground in New Mexico. Holland cited the species as *Ixodes bovis* (*Boophilus annulatus*), but it was undoubtedly *Otobius megnini*, because the tick-infested person stated that, "These creatures are often found in the ears of cattle and occasionally of horses".)
- Honess, R. F. & Winter, K. B. (1956) Diseases of wildlife in Wyoming for those interested in the diseases and parasites of the wild animal. *Wyoming Game and Fish Commission Bulletin*, No. 9, 1-279. (*O. megnini* recorded from the bighorn sheep but without specific locality.)
- Hoogstraal, H. (1952) Biological factors of ticks (Ixodoidea) of the Ethiopian faunal region in relation to human injury and disease. *Transactions of the Ninth International Congress of Entomology*, 1, 959-963. (*O. megnini* is almost entirely confined to domestic animals, ostriches, and sometimes to man in dry parts of South Africa and spottily elsewhere.)
- Hoogstraal, H. (1953) Ticks (Ixodoidea) of the Malagasy Faunal Region (excepting the Seychelles). *Bulletin of the Museum of Comparative Zoology*, 111, 37-113. (*O. megnini*, pp. 96-97, probably introduced into Madagascar on African cattle.)
- Hoogstraal, H. (1956) *African Ixodoidea. I. Ticks of the Sudan (with special reference to Equatoria Province and with preliminary reviews of the genera Boophilus, Margaropus, and Hyalomma)*. Department of the Navy, Bureau of Medicine and Surgery, Washington, D. C. 1101 pp. (*O. megnini*, p. 32, erroneous identification - see King 1911, but the tick could be introduced into the Sudan.)
- Hoogstraal, H. (1970) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1969*. Volume 1. Special publication October 1970, United States Naval Medical

- Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R. v + 498 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1970) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1969*. Volume 2. Special publication December 1970, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R. 495 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1971) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1969*. Volume 3. Special publication June 1971, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R. 435 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1972) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1969*. Volume 4. Special publication June 1972, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R. i + 355 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1972) Parasites of laboratory animals. In, Flynn, R. J. (ed.) *Parasites of endothermal laboratory animals*. Ames, Iowa, University of Iowa Press. Chapter 14, pp. 398-424. (*O. megnini*, pp. 409-410; table 14.2; morphology, life cycle, pathogenic effects, diagnosis, control and public health considerations.)
- Hoogstraal, H. (1972), (published 1973) The influence of human activity on tick distribution, density, and disease. *Wiadomości Parazytologiczne*, 18, 501-511. (*O. megnini*, in the immature stages, escapes notice feeding deep within the ears of horses, and was distributed from North America to Australia, Asia, Africa and Madagascar. Hoogstraal uses *O. megnini* as just one example of his general rule of tick distribution - "If a species occurs in two different Faunal Regions or on two different continents, man has been responsible.")
- Hoogstraal, H. (1973) Acarina (ticks). In, Gibbs, A. J. (ed.) *Viruses and invertebrates*. The Hague, North Holland Publishing Co. pp. 91-103. (Brief review of life cycle and distribution of *O. megnini* on page 94.)
- Hoogstraal, H. (1974) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1973*. Volume 5, Part I. Special publication August 1974, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R., vii + 492 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1976) Class Arachnida. In, Hunter, G. W., Swartzwelder J. C. & Clyde, D. C. (eds.) *Tropical medicine*, 5th ed. Philadelphia, W. B. Saunders Co. Chapter 69, pp. 712-729. (Colorado tick fever virus has been isolated from *O. megnini* Cooley and Kohls, p. 719. Hoogstraal appears to have mixed up the 2 species of *Otobius*. Colorado tick fever virus has been isolated from *Otobius lagophilus*, and Cooley and Kohls are the authors of that taxon. His statement is not true for *O. megnini*.)
- Hoogstraal, H. (1978) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1976*. Volume 5, Part II. Special publication April 1978, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R., iii + 455 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1981) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1979*. Volume 6. Special publication July 1981, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R., iii + 407 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1982) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1981*. Volume 7. Special publication May 1982, United States Naval Medical

- Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R., iii + 219 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. (1985) Argasid and nuttalliellid ticks as parasites and vectors. *Advances in Parasitology*, 24, 135-238. (*O. megnini*, pp. 171-172, review of life cycle, distribution, hosts and disease agents.)
- Hoogstraal, H. (1988) *Bibliography of ticks and tickborne diseases from Homer (about 800 B.C.) to 31 December 1984*. Volume 8. Special publication January 1988, United States Naval Medical Research Unit Number Three (NAMRU-3), Cairo, Egypt, U.A.R., x + 327 pp. (*O. megnini* references scattered throughout.)
- Hoogstraal, H. & Kim, K. C. (1985) Tick and mammal coevolution, with emphasis on *Haemaphysalis*. In, Kim, K. C. (ed.) *Coevolution of parasitic arthropods and mammals*. New York, John Wiley & Sons. pp 505-568. (*O. megnini* p. 519, parasitic on Nearctic Antilocapridae.)
- Hooker, W. A. (1908) Life history, habits and methods of study of the Ixodoidea. *Journal of Economic Entomology*, 1, 34-51. (*O. megnini* life cycle, p. 45.)
- Hooker, W. A. (1909) Some host relations of ticks. *Journal of Economic Entomology*, 2, 251-257. (Incorrect statement that *O. megnini* drops off the host after the first molt.)
- Hooker, W. A. (1909) The geographical distribution of American ticks. *Journal of Economic Entomology*, 2, 403-428. (*O. megnini* found in the states of Arizona, California, Idaho, Iowa, Kentucky, Kansas, Louisiana, Nebraska, Nevada, New Mexico, Oklahoma and Texas, and in Mexico and Brazil.)
- Hooker, W. A., Bishopp, F. C. & Wood, H. P. (1912) The life history and bionomics of some North American ticks. *Bureau of Entomology. United States Department of Agriculture Bulletin*, No. 106, 1-239. (*O. megnini*, pp. 27, 28, 61-69, plate IV.)
- Hopla, C. E. (1955) Observations on the life history of a rabbit tick (*Otobius lagophilus*). *Journal of the Kansas Entomological Society*, 28, 114-116. (Larval *O. lagophilus* were sensitive to high humidity, apparently similar to *O. megnini* in this respect.)
- Hopla, C. E., Durden, L. A. & Keirans, J. E. (1994) Ectoparasites and classification. *Revue Scientifique et Technique Office International des Épizooties*, 13, 985-1017. (*O. megnini*, p. 1001, originated in North America and has been introduced into many countries.)
- Horak, I. G., Williams, E. J. & Van Schalkwyk, P. C. (1991) Parasites of domestic and wild animals in South Africa. XXV. Ixodid ticks on sheep in the north-eastern Orange Free State and in the Eastern Cape Province. *Onderstepoort Journal of Veterinary Research*, 58, 115-123. (Two larvae and 2 nymphs of *O. megnini* recovered from 115 merino sheep in the north-eastern Orange Free State between Nov. 1982 and Feb. 1984.)
- Horne, W. T., Essig, E. O. & Herms, W. B. (1923) Plant disease and pest control. *California Agricultural Experiment Station Circular*, No. 265 (*O. megnini*, p. 63, not verified.)
- Horsfall, W. R. (1962) *Medical entomology. Arthropods and human disease*. New York, Ronald Press Co. vii + 467 pp. (*O. megnini*, p. 64, lives on ungulates and occasionally attacks handlers of infected stock; p. 191, deafness may follow ungulate ear infestations.)
- Hourigan, J. L. (1977) Babesiosis bovina - control y erradicación de la garrapata de la fiebre del ganado en los Estados Unidos de America. *Revista Veterinaria Venezolana*, 41, 66-77. (*O. megnini* mentioned in a list of ticks that are occasionally imported into the United States.)
- Howell, C. J. (1970) Incidence and control of ectoparasites in cattle. *Department of Agricultural Technical Services Pretoria, Republic of South Africa Scientific Bulletin*, No. 389, 1-16. (*O. megnini*, pp. 9-10, one unnumbered figure of nymph.)
- Howell, C. J., Walker, J. B. & Nevill, E. M. (1978) Ticks, mites and insects infesting domestic animals in South Africa. 1. Descriptions and biology. *Republic of South Africa Department of*

- Agricultural Technical Services. Science Bulletin*, No. 393, 69 pp. (*O. megnini*, pp. 32-34, figs. 22, 23, map 11.)
- Howell, C. J., Walker, J. B. & Nevill, E. M. (1978) Bosluise, myte en insekte van huisdiere in Suid-Afrika. Deel 1. Beskrywing en biologie. *Republiek van Suid-Afrika Departement van Landbou-Tegniese Dienste. Wetenskaplike Pamflet*, No. 393, 71 pp. (Same as above but in Afrikaans.)
- Howell, D. E., Stiles, G. W. & Moe, L. H. (1943) The fowl tick (*Argas persicus*), a new vector of anaplasmosis. *American Journal of Veterinary Research*, 4, 73-75. (Boynton, Herms and Howell (unpublished) failed to transmit anaplasmosis to fowl using *Ornithodoros coriaceus* and *Otobius megnini*. Attempts to transmit the agent of anaplasmosis experimentally in cattle by means of *O. megnini* were unsuccessful.)
- Hughes, T. E. (1959) *Mites or the Acari*. London, The Athlone Press, vii + 225 pp. (*O. megnini*, p. 49, is incorrectly stated to feed only in the larval stage, molt directly to the adult stage and then proceed to reproduce.)
- Hunt, L. M. & Gilbert, B. N. (1981) Ticks found on white-tailed deer from different ecological areas of Texas. *Southwestern Entomologist*, 6, 341-345. (The authors state that the first report of *O. megnini* on white-tailed deer was made by personnel at the Rocky Mountain Laboratory in 1943. However, no specimens of *O. megnini* were found in the present survey.)
- Hunter, W. D. & Bishopp, F. C. (1911) Some of the more important ticks of the United States. *Yearbook of Department of Agriculture*, (1910), 219-230. (*O. megnini*, pp. 222-223.)
- Hunter, W. D. & Hooker, W. A. (1907) The North American fever tick with notes on other species. *United States Department of Agriculture Bulletin*, No. 72, 87 pp. (*O. megnini*, pp. 45-46.)
- Hussel, L. (1970) Kontinuierliche Insektizid-Applikation als wichtiger Teil des Massnahmenkomplexes zur Hebung von Tierzucht und Volksgesundheit im subsaharischen Raum Afrikas. *Angewandte Parasitologie*, 11, 65-83. (*O. megnini* listed under item 23 of table 1 - Liste der "tick-borne diseases" der Haustiere (Vector/Krankheit).)
- Imes, M. (1918) The spinose ear tick and methods of treating infested animals. *United States Department of Agriculture Farmers' Bulletin*, No. 980, 1-8. (Treat *O. megnini* infested animals with a mixture of pine tar and cotton-seed oil, 2-3 teaspoonfulls squirted into each ear.)
- Imes, M. (1926) Lice, mange, and ticks of horses and methods of control and eradication. *United States Department of Agriculture Farmers' Bulletin* No. 1493, 1-22. (*O. megnini*, pp. 13-15, fig. 8a-g.)
- Instituto Interamericano Cooperación Agricultura. (1988) Estudio ecológico y epidemiológico de garrapatas en Guatemala. Mimeo, 43 pp. (First record of *O. megnini* in Guatemala.)
- Integrated Control of Ticks and Tick-borne Diseases. (1999) Review of journal article by Dreyer et al., 1998. *Newsletter on Ticks and Tick-borne Diseases of Livestock in the Tropics*, No. 11, 1-36. (*O. megnini*, p. 11, was one of the species cited in the article.)
- Irons, J. V., Eads, R. B., Johnson, C. W., Walker, O. L. & Norris, M. A. (1952) Southwest Texas Q fever studies. *Journal of Parasitology*, 38, 1-5. (Two cows in a dairy herd were proven shedders of *Coxiella burnetii*, yet several pools of *O. megnini* collected from them were negative for the organism. (But see Philip & Burgdorfer, 1961). Three *O. megnini* were also found during an examination of 176 dogs.)
- Irons, J. V., R. B. Eads & J. E. Peavy. 1957. Q fever in Texas. *Texas Reports on Biology and Medicine*, 15, 896-903. (Failure to find *Coxiella burnetii* in 15 species of ticks including many pools of *O. megnini*.)
- Ivancovich, J. C. & Luciana, C. A. 1992. *Las garrapatas de Argentina*. Monographia. Mimeo-graph. 95 pp., 40 maps. (*O. megnini*, pp. 23-24. Incorrect statement that it is present in Australia.)

- Ivens, V. R., Mark, D. L. & Levine, N. D. (1978) *Principal parasites of domestic animals in the United States. Biological and diagnostic information*. Urbana-Champaign, Colleges of Agriculture and Veterinary Medicine, University of Illinois, Special Publication 52. vi + 270. (*O. megnini* host parasite list - cats, cattle, dogs, horses, sheep, swine; found deep in the ears of cattle and horses; life history.)
- Jack, R. W. (1928) Ticks infesting domestic animals in Southern Rhodesia. *Rhodesia Agricultural Journal*, 25, 537-556. (*O. megnini*, pp. 552-553, pl. II, figs. 1, 1a, 2-5. Discussion but the species is not present in Northern Rhodesia.)
- Jack, R. W. (1928) Ticks infesting domestic animals in Southern Rhodesia. Part 2. *Rhodesia Agricultural Journal*, 25, 707-716. (Control of *O. megnini*, pp. 711-712.)
- Jack, R. W. (1936) Division of Entomology, Annual Report for the year 1936. *Rhodesia Agricultural Journal*, 34, 570-592. (*O. megnini* was found on a native horse in one locality, and on a pony imported from South Africa.)
- Jack, R. W. (1937) Division of Entomology, Annual Report for the year 1936. *Bulletin of the Ministry of Agriculture Southern Rhodesia*, No. 1037, 23 pp. (Same as immediately above.)
- Jack, R. W. (1942) Ticks infesting domestic animals in Southern Rhodesia. *Ministry of Agriculture and Lands Bulletin*, No. 1205, 1-31. (First record of *O. megnini* from southern Rhodesia (Zimbabwe) p. 15, footnote. Control pp. 25-26.)
- Jaenson, T. G. T., Tälleklint, L., Lundqvist, L., Olsen, B., Chirico, J. & Mejlom, H. (1994) Geographical distribution, host associations, and vector roles of ticks (Acari: Ixodidae, Argasidae) in Sweden. *Journal of Medical Entomology*, 31, 240-256. (*O. megnini* has not been recorded from Sweden, but has been recorded from Denmark.)
- Jagannath, M. S. & Lokesh, Y. V. (1989) Life cycle of *Otobius megnini* (Acari: Argasidae). In, Channabasavanna, G. P. & Viraktamath, C. A. (eds.) *Progress in Acarology*. New Delhi, Bombay, Calcutta, Oxford & IBH Publishing Co. Pvt. Ltd. pp. 91-94. (The minimum and maximum duration of the life cycle of *O. megnini* was 118 and 207 days, respectively. Females laid between 241 to 863 eggs.)
- Jagannath, M. S., Alwar, V. S. & Lalitha, C. M. (1973) Ixodid ticks of domestic stock in Tamil Nadu. *Indian Journal of Animal Science*, 43, 119-124. (Despite the title, this article includes a list of all tick species found in India, including *O. megnini*. They incorrectly list Cooley and Kohls as the authors of the generic name *Otobius*.)
- James, M. T. & Harwood, R. F. (1969) *Herms's Medical Entomology*, 6th ed. New York, Macmillan. viii + 484 pp. (*O. megnini*, p. 112, controlled by dusting cumaphos or spraying malathion; p. 322, nymphs known to feed for months; pp. 338-340, distribution including Congo and Nyasaland, absent from areas with more than 40 inches of rainfall, figs. 18-21, 18-22.)
- Jara, F. de la. (1972) Algunas notas sobre garrapatas del ganado bovino en México (con claves para identificación de generos y especies) y su combate con Supona®. *Ciencias Veterinarias México*, 16, 19-62; (2), 131-153. (Distribution and hosts for *O. megnini* in Mexico, and figure 12b of a nymph of *O. megnini* taken from Pratt and Littig, 1962.)
- Jara, F. de la. (1972) Algunas notas sobre garrapatas del ganado bovino en México (con claves para identificación de generos y especies) y su combate con Supona®. *Productos Químicos Veterinarios Boletín Técnico. Shell de México, S. A.; México, D. F.*, 64 pp. (Reprint of publication immediately above.)
- Jellison, W. L., Bell, E. J., Huebner, R. J., Parker, R. R. & Welsh, H. H. (1948) Q fever studies in southern California. IV. Occurrence of *Coxiella burneti* in the spinose ear tick, *Otobius megnini*. *Public Health Reports*, 63, 1483-1489. (Partially engorged and engorged nymphs of *O. megnini* were collected from cows and calves in Los Angeles County, and tested at the Rocky

- Mountain Laboratory. A total of 2,954 specimens were tested in 246 lots of 1-25 ticks each. Ten of the 246 lots tested positive for *Coxiella burneti* infection as determined by the complement fixation test.)
- Jellison, W. L., Ormsbee, R., Beck, M. D., Huebner, R. J., Parker, R. R. & Bell, E. J. (1948) Q fever studies in Southern California. V. Natural infection in a dairy cow. *Public Health Reports*, 63, 1611-1618 (Following the reference section is a paragraph indicating that this is the third in a series of 5 Q fever studies. Already published in vol. 63 are: I. recovery of *Rickettsia burneti* from raw milk; IV. The occurrence of *Coxiella burneti* in the spinose ear tick, *Otobius megnini*. Yet to be published are parts II and III.)
- Jenkins, D. W. (1964) Pathogens, parasites and predators of medically important arthropods. *Bulletin of the World Health Organization*, 30 (Supplement), 1-150. (The ant species, *Monomorium minimum* and *Pogonomyrmex barbatus molefaciens* are predators of *O. megnini*. These data are abstracted from Parish, 1949.)
- Jensen, L. A., Snow, R. L. & Clifford, C. M. (1982) Spinose ear tick, *Otobius megnini*, attached to the conjunctiva of a child's eye. *Journal of Parasitology*, 68, 528. (Larval specimen; family had a cattle ranch in northern Arizona.)
- Johnson, D. E. (1966) Ticks of Dugway Proving Ground and vicinity and their host associations. *Utah Academy of Sciences, Arts and Letters*, 43, 49-66. (Collected only second stage nymphs of *O. megnini* from the ground around watering troughs, and from cattle, horses, *Sylvilagus audubonii*, and *Eremophila alpestris*, in March through June, August and October.)
- Johnston, D. E. (1968) *An Atlas of Acari. I. The families Parasitiformes and Opilioacariformes*. Columbus, Ohio, Acarology Publications. x + 110. (Illustration of the larva of *O. megnini* taken from Herrin & Beck, 1965.)
- Joint Committee Appointed by the Royal College of Physicians of London. (1918) *The Nomenclature of Diseases*. London, H.M.S.O. xxiii + 311 pp. (*O. megnini* briefly mentioned, p. 231.)
- Jones, E. K. & Clifford, C. M. (1972) The systematics of the subfamily Ornithodorinae (Acarina: Argasidae). V. A revised key to larval Argasidae of the Western Hemisphere and description of seven new species of *Ornithodoros*. *Annals of the Entomological Society of America*, 65, 730-740. (*O. megnini* larval key, p. 731.)
- Jones, E. K., Clifford, C. M., Keirans, J. E. & Kohls, G. M. (1972) Ticks of Venezuela (Acarina: Ixodoidea) with a key to the species of *Amblyomma* in the Western Hemisphere. *Brigham Young University Science Bulletin Biological Series*, 17, 1-40. (Mention of the Pinto (1930) record of *O. megnini*.)
- Joneschild, E. M. (1942) Report of the bacteriologist and pathologist December 1, 1941 - November 30, 1942. *Report of the Montana Livestock Sanitary Board, 1941/1942*, 9-12. (During the period in question, one specimen of *O. megnini* from cattle was examined.)
- Joseph, S. A. (1982) Studies on the ecology, zoophilic and anthropophilic habits of the argasid ticks of Tamil Nadu. *Cheiron*, 11, 266-269. (*O. megnini* was recovered in large numbers from the ears of horses brought from farms in northern India for auction at the Madras Race Club. The author also found this tick in the ear of a woman who was in the habit of basking in the sun on the lawn very near a sheep shed at the Sheep Breeding Research Station, Sandynallah.)
- Joyce, C. E. (1971) Tick distribution and disease potential in the Pacific area. *Proceedings CINCPAC Preventative Medical Conference, Camp H. M. Smith, Oahu, Hawaii, 18-22 Jan.*, 101-113. (Although present in Hawaii, an *O. megnini* nymph was found in the ear of a dog arriving from Texas via Los Angeles, and 3 nymphs from the ear of a cat.)
- Kang, Y. B., Lee, S. G., Shin, T. H. & Kim, K. Y. (1989) Collection record of *Otobius megnini* (Duges, [sic] 1884) nymphs from racing horse in Korea. *Korean Journal of Veterinary Public Health*, 13, 115-119. (Many nymphal specimens collected from the ears of 3 race horses in

1988. This is the first record of *O. megnini* from Korea.)
- Kang, Y. B. & Noh, J. W. (1989) Report on *Otobius megnini* (Duges, [sic] 1884) adult female molted from second nymphal stage in laboratory. *Korean Journal of Veterinary Public Health*, 13, 121-125. (Scanning electron photomicrographs are presented.)
- Kaupp, B. F. (1908) *Animal parasites and parasitic diseases*. Chicago, Alexander Eger. 207 pp. (*O. megnini*, p. 65, not verified.)
- Kaupp, B. F. (1917) *Animal parasites and parasitic diseases*, 3rd ed. Chicago, Alexander Eger. xvi + 238 pp. (*O. megnini*, p. 71. "A specimen, two-thirds engorged with blood, taken from a steer, moulted once, and lived from Feb. 10, 1906, to July 8, 1907".)
- Keirans, J. E. (1972) A note on the generic names *Otobius* and *Otophilus* (Acarina: Argasidae). *Journal of Medical Entomology*, 9, 478. (Brief history of the generic names and synonyms of *O. megnini*.)
- Keirans, J. E. (1985) *George Henry Falkiner Nuttall and the Nuttall tick catalogue*. United States Department of Agriculture Miscellaneous Publication No. 1438, vii + 1785 pp. (*O. megnini*, p. 118, from cattle, unknown locality; p. 678, from cattle, California, U.S.A.; p. 782, from cattle, Chile; and p. 1596, from horses, Orange Free State, South Africa.)
- Keirans, J. E. (1992) Systematics of the Ixodida (Argasidae, Ixodidae, Nuttalliellidae): an overview and some problems. In, Fivaz, B., Petney, T. & Horak I. (eds.) *Tick Vector Biology. Medical and Veterinary Aspects*. pp. 1-21. Berlin, Springer. (*O. megnini*, pp. 4, 12.)
- Kemper, H. E. (1947) The spinose ear tick and methods of treating infested animals. *United States Department of Agriculture, Farmer's Bulletin*, No. 980, 1-10.
- Kemper, H. E. (1949) The spinose ear tick and methods of treating infested animals. *United States Department of Agriculture, Farmer's Bulletin*, No. 980, 1-10.
- Kemper, H. E. & Peterson, H. O. (1953) The spinose ear tick and methods of treating infested animals. *United States Department of Agriculture, Farmer's Bulletin*, No. 980, 1-12.
- Kemper, H. E., Roberts, I. H. & Peterson, H. O. (1947) Hexachlorocyclohexane as an acaricide for the control of the spinose ear tick on cattle. *The North American Veterinarian*, 28, 665-668. (Combinations of hexachlorocyclohexane, xylol and pine oil provided protection from *O. megnini* for a minimum of 17 days.)
- Kettle, D. S. (1984) *Medical and Veterinary Entomology*. New York, John Wiley & Sons. 658 pp. (*O. megnini*, pp. 409-410, figs. 22.1, 22.2.)
- Kettle, D. S. 1995. *Medical and Veterinary Entomology*, 2nd ed. London, C.A.B. International. viii + 725 pp. (*O. megnini*, pp. 441-444, figs. 22.1, 22.2.)
- King, H. H. (1911) Report of the Entomological Section of the Wellcome Tropical Research Laboratories. In, *Fourth Report of the Wellcome Tropical Research Laboratories at the Gordon Memorial College, Khartoum. Volume B: General Science*. pp. 127-130. (Key to Sudanese tick species including *O. megnini*, p. 129. This entry has led several authors to conclude that *O. megnini* is a resident tick species in Sudan. It is not.)
- King, H. H. (1926) The ticks (Ixodoidea) of the Sudan. *Wellcome Tropical Research Laboratories Entomological Section Bulletin*, No. 23, 1-15, Appendix I, II. (Footnote p. 6, *O. megnini* believed not to occur in the Sudan.)
- Kingston, J. S. (1936) Spinose ear tick in India. *Journal of the Royal Army Veterinary Corps*, 7, 142-143. (First record of *O. megnini* from India. The horse was said to have been introduced from Australia. However, the spinose ear tick is not found in Australia.)
- Kirchberg, E. (1952) Krankheitsübertragende und plagerregende Arthropoden in den Vereinigten Staaten. (Ergebnisse einer Studienreise 1951-III). *Zeitschrift für hygienische Zoologie und Schädlingsbekämpfung*, 40, 202-217. (*O. megnini*, p. 206, brief discussion of its veterinary

- importance.)
- Klein, L. (1927) Ear bushticks as a human parasite (Letter to the editor.) *Journal of the Medical Association of South Africa*, 1, 24. (Tick in the ear is a very common nuisance in these parts. The following treatment is effective. 1. Where an oily home-remedy has been used, first swab the ear with a whisp of cotton-wool. 2. Fill the ear with pure dioxygen, and wait 10 to 15 minutes. The tick either dies or loosens its hold. 3. Lastly, syringe the ear with warmed water, and the offender will come to light.)
- Klompen, J. S. H. & Oliver, J. H., Jr. (1993) Systematic relationships in the soft ticks (Acari: Ixodida: Argasidae). *Systematic Entomology*, 18, 313-331. (*O. megnini*, p. 314, was one of the species studied.)
- Klompen, J. S. H., Black IV, W. C., Keirans, J. E. & Oliver, J. H., Jr. (1996) Evolution of ticks. *Annual Review of Entomology*, 41, 141-161. (*O. megnini*, pp. 151-152, figs. 3, 4.)
- Knapp, F. W. (1985) Arthropod pests of horses, In, Williams, R. E., Hall, R. D., Broce, A. B. & Scholl, P. J. (eds.) *Livestock entomology*, New York, John Wiley & Sons. pp. 297-313. (*O. megnini*, pp. 309, 311-312, found principally in areas of low humidity, and most abundant in southwestern United States.)
- Knipling, E. F. (1950) Insecticides for livestock pest control. Lindane and toxaphene are recommended as sprays on livestock other than dairy animals - repeated applications found non-toxic. *Soap and Sanitary Chemistry*, 26, 130-131, 133, 135, 155, 157. (Toxaphene, chlordane and lindane (containing at least 99% gamma BHC) are effective against most important ticks affecting livestock, including *Amblyomma americanum*, *A. maculatum*, *Dermacentor albipictus*, *Boophilus annulatus* and *O. megnini*.)
- Knipling, E. F. (1952) Ticks, lice, sheep keds, mites. In, *Insects. The yearbook of agriculture*. United States Department of Agriculture. pp. 662-666. (*O. megnini*, p. 663, control measures for the "ear tick".)
- Knowlton, G. F. & Binns, W. (1951) Spinose ear tick control. *Utah State Agricultural College Extension Bulletin*, 240, 1-2. (*O. megnini* can be controlled with toxaphene, chlordane, benzene hexachloride or lindane.)
- Knowlton, G. F. & Binns, W. (1954) Spinose ear tick control. *Utah State Agricultural College Extension Circular*, 203, 1-2. (The spinose ear tick requires direct ear treatment to secure effective control. One-half ounce per ear of lindane or chlordane is recommended in the proper formulation.)
- Kohls, G. M. 1960. Ixodides. In, *McGraw-Hill Encyclopedia of Science and Technology*. New York, McGraw-Hill. pp. 298-299. (*O. megnini* life history briefly mentioned.)
- Kohls, G. M., Sonenshine, D. E. & Clifford, C. M. (1965) The systematics of the subfamily Ornithodorinae (Acarina: Argasidae). II. Identification of the larvae of the Western Hemisphere and descriptions of three new species. *Annals of the Entomological Society of America*, 58, 331-364. (*O. megnini* larval key, p. 332; description of larva, p. 362, figs. 61, 62.)
- Koshy, T. J., Achuthan, H. N., Rajavelu, G. & Lalitha, C. M. (1979) A survey of the tick fauna of Tamil Nadu. *Cheiron*, 8, 199-205. (*O. megnini* was collected on sheep from the Nilgris District of Tamil Nadu.)
- Koshy, T. J., Rajavelu, G., & Lalitha, C. M. (1979) Studies on the life cycle of *Otobius megnini* (Dugès, 1883). *Cheiron*, 8, 52-56. (In Madras, the life cycle of *O. megnini* varied from 69-98 days.)
- Koshy, T. J., Rajavelu, G. & Lalitha, C. M. (1981) Life cycle patterns in argasid ticks. *Cheiron*, 10, 175-178. (*O. megnini* occurs at higher elevations of Tamil Nadu and is said to have only one nymphal stage.)

- Krantz, G. W. (1970) *A Manual of Acarology*, 1st ed. Corvallis, Oregon, Oregon State University Bookstores, 335 pp. (Incorrect statement that *O. megnini* feeds only in the larval stage, p. 137.)
- Krantz, G. W. (1978) *A Manual of Acarology*, 2nd ed. Corvallis, Oregon, Oregon State University Bookstores, 509 pp. (*O. megnini*, p. 222, Pl. 54, fig. 54-2.)
- Krinsky, W. L. (1983) Dermatoses associated with the bites of mites and ticks (Arthropoda: Acari). *International Journal of Dermatology*, 22, 75-91. (*O. megnini*, table 3, nymphal feeding in the ear canals of humans.)
- Krull, W. H. (1969) *Notes in veterinary parasitology*. Lawrence, Kansas, University of Kansas Press, ix + 599 pp. (*O. megnini*, pp. 434-437, distribution, life cycle, control. An incorrect statement that the jack rabbit is a good and important host. This statement refers to *O. lagophilus*.)
- Labruna, M. B., Leire, R. C. & de Oliveira, P. R. (1997) Study of the weight of eggs from 6 ixodid species from Brazil. *Memórias do Instituto Oswaldo Cruz*, 92, 205-207. (The subfamily Otobiinae is represented in Brazil by *Otobius megnini*.)
- Lahille, F. (1915) Nota sobre los argásidos chilenos. *Anales de Zoología Aplicada*, 2, 5-11. (The nymphal stage of *O. megnini* has a spiny tegument, at least on the anterior portion of the body.)
- Lahille, F. (1927) Nota sobre algunos acaros del país. *Revista de la Universidad de Buenos Aires*, 2 ser. sect. IV, 5, 1286-1304. (*O. megnini* is common on horses, mules, etc.)
- Lahille, F. (1928) Nota sobre la garrapata espinosa *Ornithodoros megnini* (A. Dugès) Neumann. 4. *Reunión de la Sociedad Argentina de Patología Regional del Norte, Santiago del Estero*, May 7-9, 1928, pp. 660-664. ("*Ornithodoros*" *megnini* is the only species in this genus known from Argentina, although *O. talaje* has recently been found in Uruguay and is likely to be introduced.)
- Lancaster, J. L. (1973) A guide to the ticks of Arkansas. *University of Arkansas Agricultural Experiment Station Bulletin*, 779, 1-39. (*O. megnini* found in Independence, Izard, Yell, Franklin and Logan Counties.)
- Lancaster, J. L., Jr. (1984) Ear tags provide spinose ear tick control. *Arkansas Farm Research*, 33, 8. (A brief history of how *O. megnini* was imported into Arkansas from Texas in the 1950's, a list of counties infested, and control on cattle using ear tags with a combination of Amitraz and Permethrin.)
- Lancaster, J. L. & Meisch, V. M. (1986) *Arthropods in Livestock and Poultry Production*. Chichester, U.K., Ellis Horwood, Ltd. vi + 402 pp. (*O. megnini* life history, p. 169, causes otitis in cattle, horses and other domestic and wild animals, p. 170; distribution, economic importance, biology and control, pp. 215-219, figs. 4.28-4.30.)
- Lane, R. S., Miller, S. E., & Collins, P. W. (1982) Ticks (Acari: Argasidae and Ixodidae) from the California Channel Islands. *Pan-Pacific Entomologist*, 58, 96-104. (10 nymphs of *O. megnini* collected on one of 2 *Cervus canadensis*, Santa Rosa Island. First record of this tick from Santa Rosa.)
- Lapage, G. (1956) *Veterinary Parasitology*. Edinburgh, Oliver and Boyd, 964 pp. (*O. megnini* mentioned, p. 626; life history and effects on the host, pp. 671-672.)
- Lees, A. D. (1952) The role of cuticle growth in the feeding process of ticks. *Proceedings of the Zoological Society of London*, 121, 759-772. (*O. megnini*, p. 770, has an unusual life history, with extended nymphal engorgement of the second nymphal instar, and non-feeding adults.)
- Leeson, H. S. (1953) Some notes on the recorded distribution of Old World species of *Ornithodoros* (Acarina). *Bulletin of Entomological Research*, 44, 517-526. (*O. megnini* recorded from the Belgian Congo (Democratic Republic of Congo), the Indian subcontinent, Northern Rhodesia (Zambia), Southern Rhodesia (Zimbabwe), and Cape, Natal and Transvaal Provinces of South Africa.)

- Leontev, I. F. (1949) Starvation of ticks. *Priroda, Moskva*, 38, 51-52. (*O. megnini* briefly mentioned along with other “*Ornithodoros*” species such as *O. hermsi*, *O. papillipes* and *O. verrocus*. In Russian.)
- Lewis, II, T. (1989) Ticks and associated diseases. *Pet Focus*, 1, 21-23. (“*Otobius megnini* (the spinose ear tick) is the only soft tick of importance in North America, and is found mostly in the southwestern United States.”)
- Lindquist, E. E. (1979) Acari, In, Danks, H. V. (ed.) Canada and its insect fauna. *Memoirs of the Entomological Society of Canada*, No. 108, pp. 252-290. (*O. megnini*, p. 266, has caused toxicosis in cattle in British Columbia.)
- Lloyd, J. E. (Date?) Insect and related pests of livestock in Wyoming. *University of Wyoming Cooperative Extension Service Publication MP23*, iv + 12 pp. (*O. megnini* is firmly established in Wyoming, and may be abundant in their hosts ears during the summer. Wounds may become infected with bacteria, giving rise to a condition known as “ear canker”.)
- Lloyd, J. E. (1985) Arthropod pests of sheep. In, Williams, R. E., Hall, R. D., Broce, A. B. & Scholl, P. J. (eds.) *Livestock entomology*. New York, John Wiley & Sons. pp. 253-267. (*O. megnini*, p. 265, utilizes a wide range of hosts including sheep.)
- Lloyd, J. E., Spackman, E. W. & Pfadt, R. E. (1978) Control of insect pests of Wyoming horses. *University of Wyoming Agricultural Extension Service Bulletin*, B-577R, 1-15. (*O. megnini*, p. 10, fig. 26, is considered a pest of warmer climates, but has become firmly established in Wyoming.)
- Lochhead, W. (1919) *Class book of economic entomology, with special reference to the economic insects of the northern United States and Canada*, Philadelphia, Blaikstons. 436 pp. (*O. megnini*, p. 365.)
- Lockett, S. (1919) *Journal Jamaican Agricultural Society*, 23, 56. (*O. megnini* reference not verified.)
- Loiselle, R. (1999) Démythifions les acariens! *Bulletin delentomofaune*, No. 21, 12-19. (*O. megnini* listed as the tique de loreille, p. 13.)
- Lokesh, Y. V. & Jagannath, M. E. (1983) A study on the sugar content of *Otobius megnini* Duges [sic] (Acari [sic]: Metastigmata). *Indian Journal of Acarology*, 7, 70-72. (Using paper chromatography, homogenates of eggs and adults of *O. megnini* were found to contain glucose and traces of fructose.)
- Lombardero, O. J. & Peretti, R. E. (1973) Presencia de *Otobius megnini* (Dugès, 1883) en el litoral Argentino. *Revista de Medicina Veterinaria*, 54, 77-79. (*O. megnini* present in the Departments of Las Colonias, Castellanos, Capital and San Cristóbal, Argentina.)
- Long, P. (1992) External parasites in alpacas. *Alpacas*, summer 1992, 43-44. (*O. megnini* can affect llamas and alpacas. They live in the ear canal and ivermectin is reported to be an effective treatment. However, see Craig & Kunde, 1981 and Drummond, 1985.)
- Loomis, E. C. (1955) Ticks in California. *California Vector Views*, 2, 1-3. (*O. megnini* infests sheep and cattle grazing throughout the western areas of the state.)
- Loomis, E. C. (1961) Life histories of ticks under laboratory conditions (Acarina: Ixodidae and Argasidae). *Journal of Parasitology*, 47, 91-99. (*O. megnini* life cycle varied from 62-118 days.)
- Loomis, E. C. (1968) Tick paralysis in California livestock. *American Journal of Veterinary Research*, 29, 1089-1093. (Other paralysis-causing ticks in California, but thus far not implicated in livestock paralysis, are *Argas persicus* and *O. megnini*.)
- Loomis, E. C. (1977) The ear tick. *University of California, Davis, Division of Agriculture Sciences, Cooperative Extension Leaflet*, No. 2295, 1-4. (Brief discussion of hosts and distribution, life cycle and economic damage; 4 figures.)

- Loomis, E. C. (1981) Common external parasites and pests of livestock and poultry in California. *Extension Veterinary Medicine, University of California, Davis*. 71 pp. (*O. megnini*, pp. 39-41, figs. 39, 40.)
- Loomis, E. C. (1986) Ectoparasites of cattle. *Veterinary Clinics of North America: Food Animal Practice*, 2, 299-321. (*O. megnini* life cycle, pp. 300-301, fig. 1.)
- Loubser, J. N. W. (1927) Ueber Ohrzecken (*Ornithodoros megnini*) bei Menschen in Süd-Afrika. *Archiv für Schiffs-und Tropenhygiene*, 31, 45. (Several cases were seen of *O. megnini* in the ears of man in 1923-1924. Patients only noticed the presence of ticks when they pressed on the tympanic membrane. Removal was by douching with tepid water.)
- Lucker, J. T. & Foster, A. O. (1957) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, 1330, 1-51 (*O. megnini*, pp. 8-9, fig. 6, incorrect information that there is only one nymphal stage. This is a revision of an earlier edition by Hall, Dickmans & Wright.)
- Lucker, J. T. & Foster, A. O. (1961) Parasites and parasitic diseases of sheep. *United States Department of Agriculture Farmers' Bulletin*, 1330, 1-51 (*O. megnini* information as immediately above.)
- Macías Valadez, S. (1923) Ensayo de una monografía sobre ixodoidos mexicanos vulgo garrapatas. *Mémoires de la Société "Antonio Alzante"*, 41, 197-216. (*O. megnini*, pp. 199-200.)
- MacLeod, J. & Mwanaumo, B. 1978. Ecological studies of ixodid ticks (Acari: Ixodidae) in Zambia. IV. Some anomalous infestation patterns in the northern and eastern regions. *Bulletin of Entomological Research*, 68, 409-429. (Record of *O. megnini* from a cat (MacLeod et al., 1970) that was a long-term resident in the Mbala district, not an immigrant already infested elsewhere.)
- MacLeod, J., Colbo, M. H. & Bek-Pedersen, S. (1970) Occurrence of the spinose ear-tick in Zambia. *Bulletin of Epizootic Diseases of Africa*, 18, 355-358. (*O. megnini* found in the ears of horses, cattle and sheep in the Mazabuka district, Southern Province and on a cat in the Northern Province. It is stated that this is the first record of *O. megnini* from Zambia - but see Morris, 1933.)
- MacNay, C. G. (1952) Summary of the more important insect infestations and occurrences in Canada in 1951. *Annual Report of the Entomological Society of Ontario*, 82, 91-115. (*O. megnini* was present in about 50% of the deer in the Kamloops, B. C. area.)
- MacNay, C. G. (1955) Summary of important insect infestations, occurrences, and damage in Canada in 1954. *Annual Report of the Entomological Society of Ontario*, 85, 61-91. (*O. megnini* remained prevalent in the lower Okanagan Valley, and Rocky Mountain sheep in the region of Vaseaux Lake were heavily infested in November.)
- MacNay, C. G. (1956) Summary of important insect infestations, occurrences and damage in Canada in 1955. *Annual Report of the Entomological Society of Ontario*, 86, 104-127. (In the spring of 1955, 5 cattle deaths in the Shuswap Lake area were attributed to infestation by *O. megnini*.)
- MacNay, C. G. (1956) Insects affecting man and domestic animals. *Canadian Insect Pest Review*, 34, 286-287. (A calf infested with 50 nymphs of *O. megnini* was found at Kamloops on November 4, 1955. The animal died on June 25, 1956 and two-thirds of the ticks survived in the calfs ear for 225 days.)
- MacNay, C. G. (1957) Insects attacking man and other mammals. *Annual Report of the Entomological Society of Ontario*, 87, 99-100. (*O. megnini* was generally present in native ungulates and in some herds of cattle in the area of British Columbia south of parallel 52 and east of meridian 121. Infestation by this tick killed 6 cattle and was probably the cause of death in other cases reported.)

- MacNay, C. G. (1960) Summary of important insect infestations, occurrences and damage in agricultural areas of Canada in 1959. *Proceedings of the Entomological Society of Ontario*, 90, 59-73. (*O. megnini* caused the death of a yearling heifer and may have been associated with previous casualties where symptoms were similar. This species is common on mule deer and elk.)
- Macy, D. W. & Seim, H. B. (1985) Medical and surgical aspects of the ear - parts I and II. *Proceedings American Animal Hospital Association 52nd Annual Meeting*, (Orlando, FL, March 23-29, 1985), 52, 120-137. (*O. megnini* larvae engorge on lymph and treatment involves mechanical removal of ticks with forceps or hemostats.)
- Madigan, J. E., Valberg, S. J., Ragle, C. & Moody, J. L. (1995) Muscle spasms associated with ear tick (*Otobius megnini*) infestations in five horses. *Journal of the American Veterinary Medical Association*, 207, 74-76.
- Malik, H. U. & Maqbool, M. (1999) Economic importance of ticks in goats. *International Journal of Animal Science*, 14, 109-111. (The argasid tick species infesting goats are *Ornithodoros moubata*, *O. turicata*, *O. lahorensis* and *O. megnini*.)
- Manfredi, M. T. (1999) Infestazione da *Otobius megnini* in cani importati. *Praxis Veterinaria*, 20, 15-17. (*O. megnini* was found in the ear canals of dogs imported into Italy from South Africa.)
- Mangold, A. J., Bermudez, A. C., Kuhne, G. I. & Guglielmone, A. A. (1987) Garrapatos (Ixodoidea - Ixodidae et Argasidae) del ganado bovino en Santiago del Estero. 2. Especies y carga en el noreste [sic] y sudoeste de la provincia. *Revista de Medicina Veterinaria Buenos Aires*, 68, 142-146. (A nymph of *O. megnini* was found on cattle in the southeastern area of the Province of Santiago del Estero, Argentina.)
- Manilla, G. (1982) Parassitismo invernale de *Ixodes ricinus* (L., 1758) su *Felis catus domesticus* in area urbanizzata. *Parassitologia*, 24, 269-276. (*O. megnini* listed as one of the tick species found in Canada.)
- Manson-Bahr, Sir P. A. (1966) *Mansons tropical diseases. A manual of the diseases of warm climates*. Baltimore, The Williams & Wilkins Company. xiv + 1181. (Reference, p. 216, to Jellisons isolation of the organism of Q fever from *O. megnini*.)
- Marmion, B. P. (1951) "Q" fever. *Journal of the Royal Sanitary Institute*, 71, 97-102. (The "Q" fever organism has been isolated from *Haemaphysalis humerosa* in Australia, *Dermacentor andersoni*, *Rhipicephalus sanguineus*, *Amblyomma americanum* and *O. megnini* in the U.S.A., and from *Hyalomma savignyi* and *H. excavatum* in Morocco and Spain.)
- Marquardt, W. C. & Demaree, R. S. (1985) *Parasitology*. New York, Macmillan Publishing Co. (*O. megnini*, pp. 613-614, fig. 57.17. It is incorrectly stated that *O. megnini* is cosmopolitan in warm climates.)
- Marquardt, W. C., Demaree, R. S. & Grieve, R. B. (2000) *Parasitology & vector biology*, 2nd ed. San Diego and London, Academic Press. xvi + 702 pp. (*O. megnini*, pp. 679-680, fig. 51.22, can penetrate the tympanic membrane of humans and somehow cause a unilateral facial paralysis).
- Martin, J. (1925) Ear ticks (Letter to the editor). *The Farmers Weekly Bloemfontein*, 30, 1382-1383. (Letter of complaint that *O. megnini* was introduced into his goat herd in the Port Elizabeth area, but the government is unaware of its presence.)
- Martini, E. (1923) *Lehrbuch der medizinischen Entomologie*. Jena, Gustav Fischer. xvi + 462 pp. (*O. megnini*, p. 248.)
- Martini, E. (1941) *Lehrbuch der medizinischen Entomologie*, 1st ed. Jena, Gustav Fischer. xvi + 585 pp. (*O. megnini*, p. 257, larva and nymph live in the ears of cattle; p. 262, found in Africa and America; fig. 179 on p. 261 is supposed to be a nymph, but is an adult.)
- Martini, E. (1946) *Lehrbuch der medizinischen Entomologie*, 3rd ed. Jena, Gustav Fischer. xvi +

- 633 pp. (*O. megnini*, pp. 272, 276; same as above.)
- Martini, E. (1952) *Lehrbuch der medizinischen Entomologie*, 4th ed. Jena, Gustav Fischer. xvi + 694 pp. (*O. megnini*, pp. 283, 288; India now added to the list of countries where the spinose ear tick is found.)
- Matthews, B. R. (1989) *Otobius megnini* (spinose ear tick) in a dog. *Canadian Veterinary Journal*, 30, 180. (Two nymphs were removed from the horizontal canal of one of the dog's ears.)
- Mazotti, L. (1942) Los *Ornithodoros* de México y su relación con la fiebre recurrente. *Revista del Instituto de Salubridad y Enfermedades Tropicales*, 3, 47-52. (Among the argasid ticks of no medical importance in Mexico are *Ornithodoros dyeri*, *Antricola coprophilus* and *O. megnini*.)
- McAllister, C. T. (1987). Ingestion of spinose ear ticks, *Otobius megnini* (Acari: Argasidae) by a Texas spotted whiptail, *Cnemidophorus gularis gularis* (Sauria: Teiidae). *Southwestern Naturalist*, 32, 511-512. (First report of this lizard species feeding on an argasid tick.)
- McAllister, C. T. & J. E. Keirans. (1987) Additional records of tick (Acari: Ixodidae, Argasidae) ingestion by whiptail lizards, genus *Cnemidophorus*. *Texas Journal of Science*, 39, 287-288. (2 male, 2 female, 1 nymph *O. megnini* were found in the stomach of *C. tessellatus*.)
- McDaniel, B. (1979) *How to know the mites and ticks*. Dubuque, Iowa, Wm. Brown Company. 335 pp. (*O. megnini*, p. 99, fig 173. He states incorrectly that *O. megnini* is a two-host tick.)
- McDuffie, W. C. (1960) Current status of insecticide resistance in livestock pests. *Miscellaneous Publications of the Entomological Society of America*, 2, 49-54. (The ear tick *O. megnini* is fairly widespread in the U.S.A. and may be troublesome the year around.)
- McIntosh, A. & McDuffie, W. C. (1956) Ticks that affect domestic animals and poultry. *Yearbook of Agriculture, United States Department of Agriculture. Yearbook separate*, No. 2677, 157-166. (Discussion of the life cycle and feeding habits of *O. megnini*. It is estimated that in the United States the spinose ear tick is responsible for an annual loss of 1.3 million dollars in the sheep industry alone.)
- Medrano, C. A. & Suárez, V. H. (1983) La garrapata espinosa de la oreja, *Otobius megnini* (Dugès, 1883) en la provincia de La Pampa. *Boletín de la Divulgación Técnica Estación Experimental Regional Agropecuaria Anguil*, (La Pampa), (23), 1-15. (Figure, p. 6, incorrectly shows 3 nymphal stages.)
- Mégnin, P. (1883) Les garrapatas du Mexique. *Comptes-Rendu des Séances de la Société de Biologie*, 35, 7s, 5, 489-491. (See introductory remarks.)
- Mégnin, P. (1885) Les *Argas* du Mexique. *Journal de l'Anatomie et de la Physiologie*, Paris. 21, 460-475. (*O. megnini*, pp. 472-475, pl. XXI, figs. 1-8. First illustrations of this species.)
- Mégnin, P. (1892) *Les acarines parasites*. Encyclopédie Scientifique des Aide-Mémoire, 182 pp. (Three tick species in Mexico were studied including *O. megnini*, p. 67.)
- Meleney, W. P. (1975) Arthropod parasites of the collared peccary, *Tayassu tajacu* (Artiodactyla: Tayassuidae), from New Mexico. *Journal of Parasitology*, 61, 530-534. (First report of *O. megnini* from this host. Two nymphal *O. megnini* were also recovered from the ears of a recently skinned bobcat, *Lynx rufus*.)
- Meleney, W. P. (1982) Control of psoroptic scabies on calves with ivermectin. *American Journal of Veterinary Research*, 43, 329-331. (Discussed are the mite, *Psoroptes ovis*, the biting louse, *Bovicola bovis*, and the tick, *O. megnini*.)
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- Méndez, E. (1999) *Insectos y otros artrópodos de importancia médica y veterinaria*. Panamá, República de Panamá Edición Limitada. vii + 341 pp. (*O. megnini*, p. 244, causes otoacariasis and is found in the U.S.A., South America, Africa and India.)

- Menon, P. B. (1962) The occurrence of spinose ear tick, *Otobius megnini* Duges, [sic] 1883, in Poona, Maharashtra State [Abstract]. *Proceedings 49th Indian Science Congress Association*, Part 3, Section 7, 373. (This abstract records the presence of *O. megnini* in the ears of horses at Poona and nearby localities.)
- Merchant, S. R. (1990) Zoonotic diseases with cutaneous manifestations in food animals - Part I. *Compendium on Continuing Education for the Practicing Veterinarian*, 12, 1489-1497, 1519. (*O. megnini* can cause ear ulcerations which can predispose to secondary bacterial infections as well as screwworm invasion.)
- Merchant, S. R. & Taboada, J. (1991) Dermatologic aspects of tick bites and tick-transmitted diseases. In, Hoskins, J. D. (guest ed.) *Tick-transmitted diseases. Veterinary Clinics of North America Small Animal Practice*, 21, 145-155. (*Otobius megnini*, pp. 149-150, is the only argasid tick of concern in small animal dermatology.)
- Merten, H. A. & Durden, L. A. (2000) A state-by-state survey of ticks recorded from humans in the United States. *Journal of Vector Ecology*, 25, 102-113. (U. S. National Tick Collection records cite *O. megnini* on humans from Arizona, Colorado, Nevada, New Mexico, New York, Oregon and Texas.)
- Metcalf, C. L. & Flint, W. P. (1939) *Destructive and useful insects. Their habits and control*, 2nd ed. New York, McGraw Hill Book Company, Inc. xvi + 981 pp. (*O. megnini*, p. 838, fig. 552, prevalent in the semiarid sections of southwestern United States; these ticks live and feed in ears of their hosts from 1-7 months.)
- Metcalf, C. L., Flint, W. P. & Metcalf, R. L. (1951) *Destructive and useful insects. Their habits and control*, 3rd ed. New York, McGraw Hill Book Company, Inc. xiv + 1071 pp. (*O. megnini*, p. 924, fig. 552.)
- Metcalf, C. L., Flint, W. P. & Metcalf, R. L. (1962) *Destructive and useful insects. Their habits and control*, 4th ed. New York, McGraw Hill Book Company, Inc. xii + 1087 pp. (*O. megnini*, pp. 962-963, fig. 20.15.)
- Meyer-Holzappel, M. (1968) Zur Bedeutung verschiedener Holz- und Laubarten für den Braunbären. *Der Zoologische Garten*, 36, 12-33. (*O. megnini*, p. 28.)
- Miller, W. H. (1984) Diseases of domestic animals. In, Nutting, W. B. (ed.) *Mammalian diseases and arachnids*. Vol II. Boca Raton, FL, CRC Press. Chapter 6, pp. 115-126. ("All ticks, except *Otobius megnini* and *Rhipicephalus sanguineus*, reproduce and complete their life cycles in the outdoors.")
- Mills, H. B. (1941) *Montana Farmer*, 29, 5 (*O. megnini* reference not verified.)
- Mills, H. B. (1942) Other important insect pests 1941 and 1942. New introduced livestock pests. Twenty-ninth report of the State Entomologist. *Montana State College Agricultural Experiment Station Bulletin*, No. 408, 1-36. (*O. megnini*, pp. 14-17, collected in 1941 from cattle imported from Mexico into the upper Yellowstone Valley of Montana.)
- Miranpuri, G. S. (1979) *Tick taxonomy in India (Ixodoidea: Acarina)*. A review including notes on their biology, ecology, geographical distribution, host-relationship, ticks and tick-borne diseases and keys for species identification. Izatnagar, Uttar Pradesh, Division of Parasitology, Indian Veterinary Institute. 171 pp. (*O. megnini*, p. 97, found on a horse, Ahmednagar, Maharashtra.)
- Miranpuri, G. S. & Gill, H. S. (1983) *Ticks of India*. Edinburgh, Lindsay & Macleod Ltd. 125 pp., 22 pl. (*O. megnini*, p. 64, from Central Provinces and Uttar Pradesh.)
- Miranpuri, G. S. & Naithani, R. C. (1978) *A check list of Indian ticks (Ixodoidea: Acarina)*. Izatnagar, Indian Veterinary Research Institute. 50 pp. (*O. megnini*, p. V, and species number 152 of table.)

- Miyamoto, K. & Miyamoto, K. (1990) The first case of human eyeball infestation with an ixodid tick in Japan. *Japanese Journal of Sanitary Zoology*, 41, 273-274. (The authors refer to Jensen et al. (1982) as a case where *O. megnini* attached to the conjunctiva of a child.)
- Mock, D. E. (1985) Managing insect problems on beef cattle. *Kansas State University Cooperative Extension Service*, C-671, 1-24. (*O. megnini* feeding wounds may become infected, causing a condition known as "ear canker".)
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- Mock, D. E. (1990) Managing insect problems on beef cattle. *Kansas State University Cooperative Extension Service*, C-671 (Revised), 1-24. (*O. megnini* information as above.)
- Mock, D. E. (1993) Managing insect problems on beef cattle. *Kansas State University Cooperative Extension Service*, C-671 (Revised), 1-24. (*O. megnini* information as above.)
- Mock, D. E. (1998) Pests that affect human health. Ticks and tick-borne diseases. *Kansas State University Agricultural Experiment Station and Cooperative Extension Service Bulletin*, MF-2335, 1-4. (*O. megnini* lives in the arid regions of the western states, including south central and the western one-third of Kansas.)
- Mock, D. E. & Bertholf, J. K. (1985) *Kansas State University Cooperative Extension Service Ag Facts*, AF-125 (Revised), unpaginated but 6 pp. (*O. megnini* found frequently in the ears of cattle shipped into Kansas from southern states.)
- Mock, D. E. & Henderson, F. R. (1993) Health related pest control. *Kansas State University Cooperative Extension Service*, S-10 (Revised), 1-80. (*O. megnini* found in the southwestern states, including south central and southwestern Kansas.)
- Mock, D. E. & Henderson, F. R. (1993) Public Health Pest Control. *Kansas State University Cooperative Extension Service*, S-14 (Revised), 1-80. (*O. megnini* information as immediately above.)
- Mock, D. E. & Kuhlman, D. K. (1993) Animal pest control. *Kansas State University Cooperative Extension Service*, S-13 (Revised), 1-48. (Figure of *O. megnini*, p. 20; spinose ear ticks and Gulf Coast ticks, p. 37, occasionally infest horses ears and require insecticidal ear treatment.)
- Mohler, J. R. (1905) Texas fever (otherwise known as tick fever, splenetic fever, or southern cattle fever), with methods for its prevention. *Bulletin of the United States Bureau of Animal Industry* 78, 1-48. (*O. megnini*, p. 15, pl. 2, figs. 2 and 2a. The shape of this tick is similar to that of the body of a violin. It is found in the ears of cattle, horses, mules, asses, and other animals in the South and West.)
- Mohler, J. R. (1906) Texas or tick fever and its prevention. *United States Department of Agriculture Farmers' Bulletin*, No. 258, 1-45. (*O. megnini*, pp. 16-17, fig. 4, numbers 6, 6a.)
- Mohler, J. R. (1914) Texas or tick fever. *United States Department of Agriculture Farmers' Bulletin*, No. 569, 1-24. (*O. megnini*, p. 10, fig. 4, numbers 6, 6a.)
- Mohler, J. R. (1918) *Report of the Chief of the Bureau of Animal Industry. United States Department of Agriculture, Washington, D. C.*, 28 September 1918, 63 pp. (Control of *O. megnini* with 2 parts pine tar and 1 part cotton-seed oil in the ears of cattle.)
- Mohler, J. R. (1919) Report of the Chief of the Bureau of Animal Industry. *United States Department of Agriculture, Washington, D. C.*, 29 September 1919, 63 pp. (Mention of *O. megnini* control treatment confirms last year's results. See immediately above.)
- Mohler, J. R. (1930) Tick fever. *United States Department of Agriculture Farmers' Bulletin*, No. 1625, 1-29. (*O. megnini*, p. 11, fig. 4, numbers 6, 6a, 6b.)
- Mohler, J. R. (1949) Tick fever. *United States Department of Agriculture Farmers' Bulletin*, No. 1625, 1-29. (Slightly revised version of the above publication.)
- Mohler, J. R. (1960) Tick fever. *United States Department of Agriculture Farmers' Bulletin*, No.

- 1625, 1-29. (Revision of the above publication by W. A. MacKellar.)
- Mönnig, H. O. (1949) *Veterinary helminthology and entomology*, 3rd ed. London, Baillière, Tindall and Cox. 427 pp. (*O. megnini*, pp. 360-362, fig. 254.)
- Morel, P. C. (1974) Les méthodes de lutte contre les tiques en fonction de leur biology. *Cahiers de Médecine Vétérinaire*, 43, 3-23. (Brief mention of ants attacking *O. megnini*.)
- Moriello, K. A. (1987) Common ectoparasites of the dog. Part 1: Fleas and ticks. *Canine Practice*, 14, 6-18. (Problems with *O. megnini* were once limited to dogs in the southern United States, but the mobile lifestyle of clients and their dogs increases the chances of finding this tick species anywhere.)
- Morris, J. P. A. (1933) Part II. Disease control. *Annual report Department of Animal Health Northern Rhodesia for 1932*, 14-27. (First record of *O. megnini*, p. 23, for Northern Rhodesia (Zambia). It was observed on imported cattle.)
- Mucherl, L. M. (1952) Investigación de la enfermedad llamada meningo-encefalitis en el ganado de la zona de Calama e interior fronterizo, identificada como otoacariasis a *Ornithodoros megnini* (Duges, [sic] 1883). *Boletín de Informaciones Parasitarias Chilenas*, 7, 8-9. (The author concludes that the disease is produced by nymphs and larvae of *O. megnini* in the external ear, causing general nervous upset of centripetal origin with an esclamptic syndrome.)
- Muller, G. H., Kirk, R. W. & Scott, D. W. (1983) *Small animal dermatology*, 3rd ed. Philadelphia, W. B. Saunders. xv + 889 pp. (*O. megnini*, pp. 312-313.)
- Muller, G. H., Kirk, R. W. & Scott, D. W. (1989) *Small animal dermatology*, 4th ed. Philadelphia, W. B. Saunders. x + 1007 pp. (*O. megnini*, pp. 358-359.)
- Munaó Diniz, L. S., Belluomini, H. E., Travassos Filho, L. P. & da Rocha, M. B. (1987) Presence of the ear mite *Otobius megnini* in the external ear canal of lions (*Panthera leo*). *Journal of Zoo Animal Medicine*, 18, 154-155. (*O. megnini* found in the ears of 14 lions imported to the São Paulo Zoo, Brasil, from the zoo at Mendoza, Argentina.)
- Munro, J. A. (1960) A special survey of Bolivian insects. *United States Department of Agriculture Cooperative Economic Insect Report*, 10, 1061-1072. (*O. megnini* was found on a burro at Tarabuco, Bolivia.)
- Need, J. T., Dale, W. E., Keirans, J. E. & Dasch, G. A. (1991) Annotated list of ticks (Acari: Ixodoidea, Argasidae) reported in Peru: Distribution, hosts, and bibliography. *Journal of Medical Entomology*, 28, 590-597. (*O. megnini*, p. 593, hosts are cattle, dogs, horses, sheep, and humans.)
- Neilson, C. L. & Rich, G. B. (1973) *Live-stock insect control*. Entomology Branch, Ministry of Agriculture, Victoria, British Columbia, Canada, 10 pp. (The spinose ear tick is only found in interior British Columbia. For control ½ oz. of 25% lindane per gallon of water. Pour 2 table-spoons deep into each ear.)
- Neitz, W. O. (1956) A consolidation of our knowledge of the transmission of tick-borne diseases. *Onderstepoort Journal of Veterinary Research*, 27, 115-163. (*O. megnini*, p. 155, table IV as a vector of "Q" fever in the United States through an injection of an emulsion of the ticks - citing the Jellison, Bell et al., 1948 publication.)
- Neumann, L. G. (1896) Révision de la famille des ixodidés. *Mémoires de la Société Zoologique de France*, 9, 1-44. (*Argas megnini* placed in the genus *Ornithodoros* and redescribed, pp. 42-44, fig. 36.)
- Neumann, L. G. (1901) Révision de la famille des ixodidés. *Mémoires de la Société Zoologique de France*, 14, 249-372. (*O. megnini* in a key to the genus *Ornithodoros*, p. 339.)
- Neumann, L. G. (1908) Notes sur les ixodidés. VI. *Archives de Parasitologie*, 12, 5-27. (*O. megnini* mentioned in a key on p. 22.)

- Neumann, L. G. 1911. *Das Tierreich. Acarina*. Berlin, R. Friedländer & Sohn. 169 pp. (*O. megnini*, p. 125, cited from Brazil, Mexico, and in the states of Iowa, Arizona, New Mexico, California and Texas in the U.S.A.)
- Neveu-Lemaire, M. (1902) *Parasitologie animale. Et une préface par R. Blanchard*, 2nd éd. Paris, R. R. de Rudeval. 220 pp. (*O. megnini* in Mexico.)
- Neveu-Lemaire, M. (1938) *Traité d'entomologie médicale et vétérinaire*. Paris, Vigot Frères, Éditeurs. xxvi + 1339 pp. (*O. megnini*, pp. 441-444, figs. 172-174.)
- Noble, E. R. & Noble, G. A. (1961) *Parasitology. The biology of animal parasites*. Philadelphia, Lea & Febiger. 767 pp. (*O. megnini*, p. 508, can cause edema, hemorrhage, thickening of the stratum corneum and partial deafness.)
- Noble, E. R. & Noble, G. A. (1964) *Parasitology. The biology of animal parasites*, 2nd ed. Philadelphia, Lea & Febiger. 724 pp. (*O. megnini*, p. 500, as immediately above.)
- Noble, E. R. & Noble, G. A. (1971) *Parasitology. The biology of animal parasites*, 3rd ed. Philadelphia, Lea & Febiger. vii + 617 pp. (*O. megnini* and ear injury, p. 427.)
- Noble, E. R. & Noble, G. A. (1981) *Parasitology. The biology of animal parasites*, 5th ed. Philadelphia, Lea & Febiger. viii + 522 pp. (*O. megnini* can cause edema, hemorrhage, thickening of the stratum corneum and partial deafness in cattle, p. 374.)
- Nolan, M. P. & Roberson, E. L. (1982) External parasite control. In, Booth, N. H. & McDonald, L. E. (eds.) *Veterinary pharmacology and therapeutics*, 6th ed. Ames, Iowa, Iowa State University Press. Chapt. 58, pp. 892-925. (*O. megnini* difficult to control because of their location on the host.)
- Nolan, M. P. & Roberson, E. L. (1988) External parasite control. In, Booth, N. H. & McDonald, L. E. (eds.) *Veterinary pharmacology and therapeutics*, 6th ed. Ames, Iowa, Iowa State University Press. Chapt. 58, pp. 969-999. (*O. megnini* difficult to control because of their location on the host.)
- Norris, D. E., Klompen, J. S. H. & Black, IV, W. C. (1999) Comparison of the mitochondrial 12s and 16s ribosomal DNA genes in resolving phylogenetic relationships among hard ticks (Acari: Ixodidae). *Annals of the Entomological Society of America*, 92, 117-129. (*O. megnini* listed in fig. 1B, C; fig. 4-6; tab. 1.)
- Norval, R. A. I. (1982) Zimbabwe. In, Prasad, V. (ed.) *History of acarology*. pp. 465-466. West Bloomfield, Michigan, Indira Publishing House. (*O. megnini* listed as known to occur in Zimbabwe.)
- Norval, R. A. I. (1986) The ticks of Zimbabwe. XV. The family Argasidae. *Zimbabwe Veterinary Journal*, 17, 15-19. (*O. megnini* resident in Zimbabwe in ears of horses at Harare, Bulawayo and Nkomo Barracks; from dogs at Bulawayo; and twice from humans at Harare.)
- Nuttall, G. H. F. (1899) On the role of insects, arachnids and myriapods, as carriers in the spread of bacterial and parasitic diseases of man and animals. A critical and historical study. *Johns Hopkins Hospital Reports*, 8, 1-154. (Mégnin, p. 48, kept some specimens of *O. megnini* alive without food for 2 years.)
- Nuttall, G. H. F. (1911) On the adaptations of ticks to the habits of their hosts. *Parasitology*, 4, 46-67. (*O. megnini* placed in Nuttall's group 3 of argasids, quite aberrant in its habits. *Nota bene* - this article was reprinted in its entirety as appendix II (pp. 324-345) of Nuttall, G. H. F., C. Warburton, W. F. Cooper & L. E. Robinson. 1911. *Ticks. A monograph of the Ixodoidea. Part II. Ixodidae* by Nuttall and Warburton. Cambridge at the University Press, xix + 105-348.)
- Nuttall, G. H. F. (1911) Notes on ticks. I. *Parasitology*, 4, 175-182. (*O. megnini* now placed as an aberrant form of Nuttall's group 2.)

- Nuttall, G. H. F. (1914) "Tick paralysis" in man and animals. Further published records with comments. *Parasitology*, 7, 95-104. (Dr. I. U. Temple, of Pendleton, Oregon, sent F. C. Bishopp and W. D. Hunter 3 ticks from eastern Oregon that proved to be *Dermacentor albipictus*, *D. venustus* and *Otobius megnini*. *O. megnini* has not been found this far north before.)
- Nuttall, G. H. F. & Robinson, L. E. (1915) Bibliography of the Ixodoidea II. *Ticks. A monograph of the Ixodoidea*. Cambridge at the University Press. 32 pp. (Scattered references to *O. megnini*.)
- Nuttall, G. H. F., Robinson, L. E. & Cooper, W. F. (1911) Bibliography of the Ixodoidea I. *Ticks. A monograph of the Ixodoidea*. Cambridge at the University Press. vi + 68 pp. (Scattered references to *O. megnini*.)
- Nuttall, G. H. F., Warburton, C., Cooper, W. F. & Robinson, L. E. (1908) *Ticks. A monograph of the Ixodoidea. Part I. The Argasidae*. Cambridge at the University Press. x + 104. (*O. megnini*, pp. 71-77, figs. 102-112; discussion of biology, pp. 103-104.)
- Nuttall, G. H. F., Warburton, C., Cooper, W. F. & Robinson, L. E. (1911) *Ticks. A monograph of the Ixodoidea. Part II. Ixodidae* by Nuttall and Warburton. Cambridge at the University Press. xix + 105-348. (A reprint of Nuttall's (1911) article on the adaptations of ticks to the habits of their hosts is presented as appendix II.)
- Olenev, N. O. (1934) Les limites septentrionales de la distribution des tiques Ixodoidea sur les continents du globe terrestre. *Izvestiya Akedemii Nauk SSSR*, (2-3), 367-388, pls. I-V. (In Russian, French summary). (*O. megnini*, p. 379, found in Oregon, Nevada, Oklahoma, Texas, New Mexico, Arizona and California.)
- Oliver, J. H., Jr. (1974) Symposium on reproduction of arthropods of medical and veterinary importance. IV. Reproduction in ticks (Ixodoidea). *Journal of Medical Entomology*, 11, 26-34. (Some spermatocytes of engorged nymphal *O. megnini* undergo meiosis and almost certainly continue to develop into spermatids.)
- Oliver, J. H., Jr. (1977) Cytogenetics of mites and ticks. *Annual Review of Entomology*, 22, 407-429. (No published data on *Otobius* chromosomes exist, but unpublished research of Oliver and Osburn indicates that both *O. megnini* and *O. lagophilus* males consist of $2n = 20$. Presumably males possess XY sex chromosomes and females XX chromosomes. See Oliver and Osburn below.)
- Oliver, J. H., Jr. (1981) Tick reproduction: sperm development and cytogenetics. In, Obenchain, F. D. and Galun, R. (eds.) *Physiology of ticks*. Oxford, U.K., Pergamon Press. pp. 245-275. (Information on *O. megnini* essentially as given immediately below.)
- Oliver, J. H., Jr. & Osburn, R. L. (1977) Cytogenetics of ticks (Acari: Ixodoidea). 15. Notes on chromosomes and maturation of *Otobius megnini* and *Otobius lagophilus*. *Journal of Parasitology*, 63, 176-178. (Both species possess a diploid chromosome number of 20.)
- Osborn, H. (1896) Insects affecting domestic animals: An account of the species of importance in North America. *United States Department of Agriculture Division of Entomology Bulletin*, No. 5, 302 pp. (*O. megnini* (as *Rhynchoprium spinosum*) plate III, fig. 1, 1a-i, p. 256, found in Texas.)
- Osorno Mesa, E. (1940) Las garrapatas de la Republica de Colombia. *Revista de la Academia Colombiana de Ciencias Exactas, Físico-Químicas y Naturales*, 4, 6-24. (*O. megnini* mentioned in a key to *Ornithodoros*, p. 10.)
- Oswald, B. (1939) On nowadays methods of tick eradication (Ixodoidea). *Jugoslavenski Veterinarski Glasnik*, 19, 471-481 (*O. megnini* briefly mentioned twice, p. 472) (In Croatian, English summary.)
- Özer, E. & Aydın, L. (1996) Malatya'da siğirlarda *Otobius megnini* (Duges, [sic] 1883)'nin bulunuşu. (Presence of *Otobius megnini* (Duges, [sic] 1883) in cattle in Malatya). *Türk Veterinerlik ve Hayvanlık Dergisi*, 20, 231-234. (This is the first report of *O. megnini* infesting Turkish cattle. Examination of 20 cattle in a village in Malatya Province, Turkey revealed 2

- first stage nymphs and 5 second stage nymphs of *O. megnini*.)
- Parish, H. E. (1942) Factors predisposing animals to screwworm infestation in Texas. *Journal of Economic Entomology*, 35, 899-903. (*O. megnini* is responsible for over 7% of *Cochliomyia hominivorax* infestations in lambs and over 3% in sheep and cattle.)
- Parish, H. E. (1949) Recent studies on life history and habits of the ear tick. *Journal of Economic Entomology*, 42, 416-419. (Studies on *O. megnini* were conducted in Texas. Eggs laid in February required 50 days to hatch. Larvae engorged in 5-10 days in the ears of cattle; molted to nymphs 1-5 weeks later. Nymphs engorged for 2 or more months, dropped to the ground and molted. Adults did not feed, and one mating produced an average of 1444 eggs in 5.8 egg masses.)
- Parker, R. R. & Wells, R. W. (1916) Some facts of importance concerning the Rocky Mountain spotted fever tick (*Dermacentor venustus* Banks) in eastern Montana. *Montana State Board of Entomology Biennial Report*, No. 2, 45-56. (*O. megnini* found on rabbits in the vicinity of Powderville, Montana. These collections are actually *Otobius lagophilus* - see Cooley & Kohls 1940.)
- Parr, V. V. (1925) Beef-cattle production in the range area. *United States Department of Agriculture Farmers Bulletin*, No. 1395, 1-43. (*O. megnini*, pp. 42-43, is prevalent in the southern portion of the Great Plains region and very generally in the arid sections of the intermountain region. An infested animal usually shakes its head, holds it to one side or the other, and rubs it as if the ears itched. The ticks may be beyond detection by sight, in which case a smooth wire bent into a half-inch circle, with an extension of from 6 to 8 inches as a handle, may be inserted into the ear and used to dislodge some of the ticks. Dipping is not effective, but a small amount of a mixture of 2 parts, by volume, of pine tar and one part of cottonseed oil slightly heated, if necessary to mix thoroughly, poured into the ear is very effective.)
- Parr, V. V. (1933) Beef-cattle production in the range area. *United States Department of Agriculture Farmers Bulletin*, No. 1395 (revised), 1-43. (*O. megnini*, pp. 42-43, same as immediately above.)
- Pavri, K. M., Anderson, C. R. & Singh, K. R. P. (1964) An outbreak of rabies in horses near Poona, India. *Current Science*, 33, 329-330. (The only tick species found on these horses was *O. megnini*, and no virus was isolated from pools of this tick species.)
- Payno Balsanz, J. M. (1978) Identificación de parásitos de importancia veterinaria en los animals de Bolivia. *Publicado por la Misión Británica en Agricultura Tropical*. Cooperación Técnica de Gran Britána, Santa Cruz de la Sierra, Bolivia, Marzo 1978. pp. 1-22. (*O. megnini* nymphs found in the ears of cattle in Departamento Cochabamba, Bolivia.)
- Peacock, P. B. (1958) Tick paralysis or poliomyelitis. *South African Medical Journal*, 32, 201-202. (Possible case of human tick paralysis caused by *O. megnini*.)
- Peairs, L. M. (1941) *Insect pests of farm, garden, and orchard*, 4th ed. New York, John Wiley & Sons, Inc. xvii + 549 pp. (*O. megnini*, p. 409, a pest of livestock.)
- Peairs, L. M. & Davidson, R. H. (1956) *Insect pests of farm, garden, and orchard*, 5th ed. New York, John Wiley & Sons, Inc. vii + 661 pp. (*O. megnini*, pp. 608-609, their blood-sucking habit causes irritation and annoyance, and their bites occasionally become infected with pus-forming bacteria, giving rise to a condition known as "ear canker.")
- Pence, D. B. (1984) Diseases of laboratory animals. In, Nutting, W. B. (ed.) *Mammalian diseases and arachnids*. Vol. II. Boca Raton, FL., CRC Press. Chapter 7, pp. 129-187. (*O. megnini*, fig. 1, p. 132.)
- Pence, D. B. & Custer, J. W. (1981) Host-parasite relationships in the wild Canidae of North America. II. Pathology of infectious diseases in the genus *Canis*. In, Chapman, J. A. & Pursley, D.

- (eds.) *The Worldwide Furbearer Conference Proceedings*, (Frostburg, August 1980). pp. 760-845. (Table 3, *O. megnini* recorded on coyote. Data from Bishopp & Trembley (1945) publication.)
- Pérez Viguera, I. (1934) On the ticks of Cuba, with description of a new species, *Amblyomma torrei*, from *Cyclura macleayi* Gray. *Psyche*, 41, 13-18. (*O. megnini* found on a horse in the Province of Havana. It is not common and may not be indigenous.)
- Pérez Viguera, I. (1956) *Los ixódidos y culícidos de Cuba, su historia natural y médica*. La Habana, 579 pp. (*O. megnini* reference not verified.)
- Perris, E. E. (1995) Parasitic dermatoses that cause pruritus in horses. *Veterinary Clinics of North America Equine Practice*, 11, 11-28. (Clinical signs of *O. megnini* in ears of horses include abnormal head carriage, head shaking, and head rubbing. Incorrect statement that various stages in the life cycle feed repeatedly.)
- Petrishcheva, P. A. (ed.). 1965. *Vectors of diseases of natural foci*. (Translated from the Russian by B. Hershkovits. Translation edited by O. Theodor. Israel program for scientific translation, Jerusalem 1965). Translation of *Perenochiski Vozbuditelei prirodnoochagovykh Boleznei*, Moscow, 1962. (*O. megnini* naturally infected with the rickettsia of Q fever in Los Angeles, California - reference to Jellison, Bell et al., 1948.)
- Pfadt, R. E., Lloyd, J. E. & Spackman, E. W. (1973) Control of insect and related pests of sheep. *University of Wyoming Agricultural Experiment Station Bulletin*, 514R, 1-15. (*O. megnini*, p. 6, fig. 6.)
- Pfadt, R. E., Lloyd, J. E. & Spackman, E. W. (1980) Control of insect and related pests of sheep. *University of Wyoming Agricultural Experiment Station Bulletin*, 514R, 1-15. (*O. megnini*, p. 5, fig. 6.)
- Pfadt, R. E., Lloyd, J. E. & Spackman, E. W. (1983?) Control of insect and related pests of sheep. *University of Wyoming Agricultural Experiment Station Bulletin*, 514R, 1-15. (*O. megnini*, p. 5, fig. 6. This bulletin is undated, but from internal evidence it appears to have been printed in 1983.)
- Philip, C. B. (1953) Tick talk. *Scientific Monthly*, 76, 77-84. (*O. megnini* briefly mentioned as the spinose ear tick, p. 80, and as having a well-armed hypostome in the nymphal stages but an unarmed hypostome as adults.)
- Philip, C. B. & Burgdorfer, W. (1961) Arthropod vectors as reservoirs of microbial disease agents. In, Steinhilber, E. A. and Smith, R. F. (eds.) *Annual Review of Entomology*. Palo Alto, California, Annual Reviews. pp. 391-412. (*O. megnini* infected with *Coxiella burnetii* have been collected from healthy cattle. The citation given for this information was Irons et al. (1952). Philip & Burgdorfer were incorrect; the cattle were positive for *Coxiella burnetii* but the *O. megnini* feeding on them were negative.)
- Pierce, W. D. (1921) *Sanitary entomology*. Boston, Roger D. Badger. xxvi + 518 pp. (*O. megnini*, pp. 444-445.)
- Pierquin, L. (1960) Note complémentaire sur les tiques du Congo belge et du Ruanda-Urundi. *Bulletin Agricole de Congo Belge* 51, 125-138. (*O. megnini* listed in a table of 62 tick species found in the Belgian Congo.)
- Pierquin, L. & Niemegeers, K. (1957) Répertoire de distribution géographique des tiques au Congo belge et au Ruanda-Urundi. *Bulletin Agricole du Congo Belge*, 48, 1177-1224. (*O. megnini* in list of species, p. 1178; records of Schoenaers (1950, 1951) cited, p. 1184.)
- Pierquin, L. & Niemegeers, K. (1958) Tables dichotomiques pour l'identification des tiques adultes au Congo belge et Ruanda-Urundi. *Bulletin Agricole du Congo Belge*, 49, 421-460. (*O. megnini* listed, p. 426.)
- Pillmore, R. E. (1961) General investigations of diseases and parasites. *Quarterly Report Colorado*

- Department of Game and Fish, 1961, 101-102. (*O. megnini* reference not verified.)
- Pinto, C. (1930) *Artrópodos parasitos e transmissores de doenças*. Tomo I. Rio de Janeiro, Pimenta de Mello & C. xvi + 395. (*O. megnini*, p. 54, fig. 20, found in North America, Mexico, Argentina, Venezuela, Peru and Brazil. This is the first record of *O. megnini* from Brazil.)
- Ponte, E. del. (1958) *Manual de entomología médica y veterinaria argentinas*. Buenos Aires, Ediciones Libería del Colegio. 349 pp. (*O. megnini*, p. 276, group 3; p. 279, brief morphology; p. 280, fig. 203, 204 (after Boero, 1944), Table 20.)
- Porter, C. E. (1917) Notas de Acarologia. 1. Un caso de otoacariasis en le norte de Chile. *Anales de Zoología Aplicada*, 4, 30. (Porter reports *Ornithodoros talaje* in the ear of a woman who milked cows in Vallenar, Chile. The tick is obviously *Otobius megnini*.)
- Pospelova-shtrom, M. V. (1946) On the Argasidae system (with descriptions of two new subfamilies, three new tribes and one new genus). *Meditinskaya Parazitologiya*, 15, 47-58. (*O. megnini*, p. 48, and the new tribe Otobini erected.)
- Pospelova-shtrom, M. V. (1969) On the system of classification of ticks of the family Argasidae Can., 1890. *Acarologia*, 11, 1-22. (*O. megnini* females, without feeding, lay eggs under the bark of trees against which vagrant ungulates come to rub themselves and so are attacked by tick larvae.)
- Pratt, H. D. (1999) *Ticks of public health importance and their control*. Centers for Disease Control and Prevention, Public Health Practice Program Office, Atlanta, GA. Manual 8A, 68 pp. (*O. megnini*, p. 40, brief life cycle; p. 67, fig. 12B, key.)
- Pratt, H. D. & Littig, K. S. (1962) *Ticks of public health importance and their control*. Public Health Service Publication No. 772, Insect Control Series: Part X, 42 pp. (*O. megnini*, p. 24, fig. 12b)
- Pratt, H. D. & Littig, K. S. (1974) *Ticks of public health importance and their control*. Department of Health, Education and Welfare Publication No. (CDC)74-8142, 39 pp + Appendix. (*O. megnini*, p. 26, fig. 12b.)
- Pratt, H. D. & Stojanovich, C. J. (1966) Acarina: Illustrated key to some common adult female mites and adult ticks. In, *Pictorial keys. Arthropods, reptiles, birds and mammals of public health significance*, pp. 26-37. Department of Health, Education and Welfare, Public Health Service, Communicable Disease Center. Unnumbered publication, iii + 192 pp. (*O. megnini*, couplet 32, fig. 32b is of a nymph found usually on cattle and horses.)
- Price, M. A., Hamman, P. J. & Newton, W. H. (1972) External parasites of cattle. *Texas A & M University Agricultural Extension Service Bulletin*, B-1080, 1-24. (Parasitic larvae and nymphs of *O. megnini* can cause wounds in the ears of cattle that become infected with pus-forming organisms that give rise to a condition known as "canker ear.")
- Price, M. A., Newton, W. H. & Hamman, P. J. (1967) Insect, mite and tick parasites of Texas horses. *Texas A & M University Agricultural Extension Service* MP-833, 1-8. (The duration of the 2 nymphal stages of *O. megnini* can be as short as 3 weeks or as long as 7 months. Females begin to lay eggs within 2-6 weeks after mating, and deposit 800-1,000 eggs.)
- Price, M. A., Newton, W. H. & Hamman, P. J. (1967) External parasites of Texas sheep and goats. *Texas Agricultural Extension Series*, MP-834, 1-11. (The duration of the 2 nymphal stages of *O. megnini* in an animal's ear can be as short as 3 weeks or as long as 7 months. A female deposits 800 to 1000 eggs.)
- Quintero, M. T. & Acevedo, A. (1987) Frecuencia de *Psoroptes caprae*, *Dermacentor variabilis* y *Otobius megnini* en conducto auditivo de caprinos sacrificados en el rastro municipal de Ciudad Nezahualcoyotl, Estado de Mexico. *Veterinaria*, 18, 119-121. (*Psoroptes caprae* was found in 18.2% of the ears of 909 slaughtered goats. In some samples, the tick species *Dermacentor variabilis* and *O. megnini* were also found.)
- Radford, C. D. (1955) Acarology - or the study of mites (Acarina). *Revista di Parassitologia*, 16,

- 41-58 (Larval *O. megnini*, p. 51, climb to a vantage point that is approximately the height of a cows ears when the animal is grazing.)
- Radostits, O. M., Blood, D. C. & Gay, C. C. (1994) *Veterinary medicine. A textbook of the diseases of cattle, sheep, pigs, goats and horses*, 8th ed. London, Baillière Tindall. xxiii + 1763 pp. (*O. megnini*, p. 1294, table 71, causes worry due to damage to hides and loss of production.)
- Radostits, O. M., Gay, C. C., Blood, D. C. & Hinchcliff, K. W. (2000) *Veterinary medicine. A textbook of the diseases of cattle, sheep, pigs, goats and horses*, 9th ed. London, W. B. Saunders. xxvii + 1877 pp. (*O. megnini*, p. 1402, causes worry; p. 1405, control and eradication; p. 1473, induced muscle cramping.)
- Raja, E. E., Joseph, S. A. & Lalitha, C. M. (1986) Vector potential in relation to incidence of bovine theileriosis in Tamil Nadu. *Cheiron*, 15, 110-112. (The argasid tick species collected from cattle with suspected cases of theileriosis were *O. megnini* and *Ornithodoros savignyi*.)
- Rajeswari, Y. B., Jagannath, M. S. & Abdul Rahman, S. (1987) Field trials with propetamphos for the control of ixodid ticks. *University of Agricultural Sciences Bangalor Current Research*, 16, 1, 13-14. (Horses infested with *O. megnini* achieved 100% control after 48 hours with 0.05% Blotic (propetamphos), and no reinfestation occurred over the following 8 weeks.)
- Ramanujachari, G. & Alwar, V. S. (1955) Notes of parasitological interest. I. Piroplasmosis (*Babesia herpestedis*) in mongoose. II. Spinose ear tick (*Otobius megnini*) in horse showing signs of nervous disease. III. *Trichuris cynocephalus* Khera, 1951, in Indian monkeys: First recording. *Ceylon Veterinary Journal*, 3, 38-40. (*O. megnini* possibly causes signs of nervous disease in horses.)
- Ransom, B. H. (1908) *Yearbook, United States Department of Agriculture, 1907*, Washington, D.C., 798 pp. (*O. megnini*, p. 552, has been found in portions of 3 parishes in northern Louisiana. The infestation probably originated with the importation of horses from west Texas.)
- Ransom, B. H. (1908) *Report United States Bureau of Animal Industry*. (*O. megnini*, p. 505, not verified.)
- Ransom, B. H. (1909) *Yearbook, United States Department of Agriculture, 1908*, Washington, D.C., 822 pp. (*O. megnini*, p. 580, was present in usual numbers and some attacks upon humans came to notice.)
- Ransom, B. H. (1916) The animal parasites of cattle. In, *U.S. Department of Agriculture Bureau of Animal Industry Special Report on Diseases of Cattle*. pp. 510-536. (*O. megnini*, p. 523, larvae may live for 80 days without a host. Ear ticks are difficult to kill because of their protected location. This publication first appeared in 1892 and again in 1896, 1904, 1908 and 1912. We do not know if *O. megnini* was cited in the other editions.)
- Rapp, W. F. (1958) Tick problems in the Great Plains states. *Proceedings of the 13th Annual Meeting North Central Branch Entomological Society of America*, 13, 47-49. (*O. megnini* is a pest of certain herds of cattle in Kansas, is established in Wyoming, and is increasing in numbers in southwestern Nebraska.)
- Raynaud, J.-P. & Rassona, G. (1962) Prospection des hématozaires et tiques de bovins à Madagascar. I. Recherches dans la province de Tananarive. *Revue D'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 15, 137-145. (*O. megnini* found only rarely on cattle in 2 regions of Tananarive Province.)
- Raynaud, J.-P. & Uilenberg, G. (1962) Prospection des hématozaires et tiques de bovins à Madagascar. II. Recherches complémentaires et conclusions. *Revue D'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 15, 147-153. (*O. megnini* mentioned in the summary along with *Amblyomma variegatum* as being found only rarely.)
- Reeves, W. C. & Hammon, W. McD. (1962) Epidemiology of the arthropod-borne viral encephalitis-

- ides in Kern County, California 1943-1952. *University of California Publications in Public Health*, 4, 1-257. (Table 3-1, *O. megnini* listed as one of the blood-sucking arthropods of Kern County.)
- Rich, G. B. (1957) The ear tick, *Otobius megnini* (Duges) [sic] (Acarina: Argasidae), and its record in British Columbia. *Canadian Journal of Comparative Medicine*, 21, 415-418. (*O. megnini* killed 10 head of cattle in 1955 and 1956.)
- Rich, G. B. & Gregson, J. D. (1968) The first discovery of free-living larvae of the ear tick, *Otobius megnini* (Duges) [sic], in British Columbia. *Journal of the Entomological Society of British Columbia*, 65, 22-23. (Larvae dropping into the hair of humans from the roof of a cave where mountain sheep shelter and rest.)
- Rieder, N. & Gothe, R. (1993) Ehrlichiosen des Hundes in Deutschland: Erregerfauna, -biologie und -ökologie, Pathogenese, Klinik, Diagnose, Therapie und Prophylaxe. *Kleintierpraxis*, 38, 775-790. (Mention of *O. megnini* and the *Ehrlichia* experiments of Ewing et al., 1990.)
- Riley, C. V., Howard, L. O., Schwartz, E. A. & Gill, T. (1896) Dr. George Marx. *Proceedings of the Entomological Society of Washington*, 3, 195-201. (Illustration of *Rhynchoprium spinosum* Marx, 1896, plate II, figs. 1, 1a-i.)
- Riley, W. A. & Johannsen, O. A. (1915) *Handbook of medical entomology*. Ithaca, NY, Comstock Publishing Co. ix + 348 pp. (*O. megnini*, p. 259.)
- Riley, W. A. & Johannsen, O. A. (1932) *Medical entomology; a survey of insects and allied forms which affect the health of man and animals*. New York, McGraw Hill. xi + 476 pp. (*O. megnini*, pp. 72-73, fig. 34 after Stiles, fig. 35 after Nuttall & Warburton.)
- Riley, W. A. & Johannsen, O. A. (1938) *Medical entomology; a survey of insects and allied forms which affect the health of man and animals*, 2nd ed. New York, McGraw Hill. xiii + 483 pp. (*O. megnini* found as far north as Iowa, Nevada, Oregon, and even Alberta. The generic name *Otobius* is misspelled as either *Otiobius* or *Otiobus* on pp. 70, 72 and 73.)
- Ringuelet, R. (1948) Zooparasitos de interes veterinario - su distribución en la Argentina segun comprobaciones de la dirección de patologia animal (1935-1945). *Ministerio de Agricultura de la Nacion, Dirección General de Ganaderia, Publicación Miscelanea No. 281*, 54 pp. (*O. megnini* found in the provinces of Jujuy, Catamarca, La Rioja, Cordoba and San Luis.)
- Roberts, F. S. H. (1952) *Insects affecting livestock*. Australian Agricultural and Livestock Series. Sydney, Angus and Robertson. vi + 267 pp. (*O. megnini*, pp. 201-202, adults are not parasitic and not found on animals. He gives the distribution as South Africa, the United States, Mexico, the Argentine, and India.)
- Roberts, I. H., Hanosh, G. J. & Apodaca, S. A. (1964) Observations on the incidence of chorioptic acariasis of sheep in the United States. *American Journal of Veterinary Research*, 25, 478-482. (In a survey for *Chorioptes bovis* of sheep in 8 states, *O. megnini* was found on 5% of the sheep on 2 ranches in Quemado and Vander Wagen, New Mexico.)
- Roberts, I. H., Meleny, W. P. & Apodaca, S. A. (1969) Oral famphur for treatment of cattle lice, and against scabies mites and ear ticks of cattle and sheep. *Journal of the American Veterinary Medical Association*, 155, 504-509. (Famphur was not effective in controlling *O. megnini*.)
- Roberts, L. S. & Janovy, J., Jr. (1996) *Gerald D. Schmidt & Larry S. Roberts' foundations of parasitology*, 5th ed. Dubuque, Iowa, Wm. C. Brown. vii + 659 pp. (*O. megnini*, p. 611, fig. 40.10, heavy infestations can have serious, even fatal, effects in livestock.)
- Rodriguez, P. H. (1977) A survey of ectoparasites of hares and rabbits in Grant County, New Mexico. *Texas Journal of Science*, 28, 358. (Two adults and a nymph of *O. megnini* reported from 2 cottontail rabbits. Adult *Otobius* are not likely to be found on a host, and these may well be *O. lagophilus* rather than *O. megnini*.)

- Rodhain, F. & Perez, C. (1985) *Précis d'entomologie médicale et vétérinaire*. Notations d'épidémiologie des maladies à vecteurs. Paris, Maloine. 458 pp. (*O. megnini*, p. 367, a tick without eyes; p. 377, a vector of *Coxiella burnetii* and listed incorrectly as a vector of *Rickettsia rickettsi*.)
- Rogers, A. J. & Mills, T. W. (1950) Spinose ear ticks in Florida. *Journal of Economic Entomology*, 42, 392-292. (*O. megnini* established in a cattle herd at Alachua, Florida.)
- Roth, L. (1988) Pathologic changes in otitis externa. *Veterinary Clinics of North America. Small Animal Practice*, 18, 755-764. (Adults of *O. megnini* live in cracks and crevices of the environment, whereas larvae live within the external ear canal. The author does not mention nymphs living in the ear canal also.)
- Roveda, R. J. (1954) Ixodoidea. Contribucion biológica. *Revista de Medicina Veterinaria*, 36, 105-112, 115-119. (Larvae of *O. megnini* last 60 days in summer and 120 days in winter in the laboratory. Nymphs molt to adults in 10-20 days, and adults can live in the laboratory for 20 months.)
- Roveda, R. & Ringulet, R. (1947) Lista de los parásitos de los animales domésticos en la Argentina. *Gaceta Veterinaria*, 9, 67-78. (*O. megnini*, p. 68, found in the subandian district.)
- Rude, C. S. & Parish, H. E. (1946) Control of the ear tick. *Bureau of Entomology and Plant Quarantine, United States Department of Agriculture*, Leaflet E-695, 1-4. (Applying stock 1029 to the ears with a one-inch paint brush provides effective control of *O. megnini*.)
- Rude, C. S. & Smith, C. L. (1944) DDT for control of gulf coast and spinose ear ticks. *Journal of Economic Entomology*, 37, 132. (A non-drying adhesive containing 5% DDT was applied inside the ears of 113 cattle at Manard, Texas. There was a high percentage of *O. megnini* killed and a high degree of protection from reinfestation, although no figures are given.)
- Rudolph, R. R. (1985) Arthropod pests of pet animals. In, Williams, R. E., Hall, R. D., Broce, A. B. & Scholl, P. J. (eds.) *Livestock entomology*. New York, John Wiley & Sons. pp. 315-321. (*O. megnini*, p. 316, is found in the external ear canals of dogs and cats.)
- Saliba, E. K., Sweatman, G. K. & Kowar, N. S. (1971) Effect of ronnel on the respiration rate of *Ornithodoros savignyi* ticks at different temperatures after topical application or oral ingestion. *Journal of Medical Entomology*, 8, 73-83. (Brief mention that Drummond et al. (1967) obtained excellent control of *O. megnini* with either a 0.75% spray or a 5% dust of ronnel.)
- Salmon, D. E. & Stiles, C. W. (1901) The cattle tick (Ixodoidea) of the United States. *17th Annual Report United States Bureau of Animal Industry*, (1900), 380-491. (*O. megnini*, pp. 385, 386, 408-14, figs. 65, 67, 82-108.)
- Samish, M. & Rehacek, J. (1999) Pathogens and predators of ticks and their potential in biological control. *Annual Review of Entomology*, 44, 159-182. (Ants are known to prey on various tick genera, and are thought to be killers of *Argas miniatus*, *Boophilus annulatus* and *B. microplus*, *Ornithodoros moubata* (incorrectly placed in the genus *Otobius*), and *O. megnini*.)
- Sanchez, D. J. (1887) Datos para la zoología médica Mexicana. *Gaceta Médica de México*, 22, 97-111. (*O. megnini*, p. 107, sometimes absorbs blood in such amounts that its volume increases extraordinarily.)
- Sanderson, E. D. & Peairs, L. M. (1931) *Insect pests of farm, garden and orchard*, 3rd ed. New York, John Wiley & Sons, Inc. vii + 568 pp. (*O. megnini*, p. 513, incorrectly placed in the family Ixodidae. An occasional pest of horses, cattle and sheep in the southwestern United States. Note - *O. megnini* is not mentioned in the 1st or 2nd editions of this book.)
- Santos Dias, J. A. T. (1955) Contribuição para o conhecimento da fauna Ixodológica do Sudoeste Africano. *Anais do Instituto de Medicina Tropical*, 12, 75-100. (*O. megnini* was not found in Santos Dias's examination of Dr. Fritz Zumpt's tick collections from Southwest Africa (Namibia). He does list it from Cape, Orange Free State, Natal and Transvaal Provinces of

- South Africa.)
- Savory, T. (1964) *Arachnida*. London and New York, Academic Press. viii + 291 pp. (Ticks such as *O. megnini*, p. 239, attach in the ear where the host cannot scratch or rub them off.)
- Schad, G. A. (1958) First report of *Ornithodoros (Otobius) megnini* from the pronghorn antelope, *Antilocapra americana*. *Journal of Parasitology*, 44, 514. (Collection made 20 miles north of Roswell, New Mexico.)
- Schmeitzel, L. P. & Ihrke, P. J. (1991) External parasites of dogs and cats. In, Colville, J. (ed.) *Diagnostic parasitology for veterinary technicians*. Goleta, CA, American Veterinary Publications, Inc. pp. 85-100. (*O. megnini*, p. 90, fig. 7.)
- Schmidt, G. D. & Roberts, L. S. (1985) *Foundations of parasitology*, 3rd ed. St. Louis, Times Mirror/Mosby College Publishing. viii + 775 pp. (*O. megnini*, p. 726, fig. 40-12.)
- Schmidt, H. von. (1949) *Durch Insekten hervorgerufene Krankheiten*. Stuttgart, Ferdinand Enke Verlag. 277 pp. (*O. megnini*, p. 210, remains for a long period of time in the ears of its host; p. 211, found in Mexico and the Transvaal.)
- Schoenaers, F. (1950) Présence au Katanga d'*Ornithodoros megnini* (Dugès, 1883). *Annales de la Société Belge de Médecine Tropical*, 30, 1541-1543. (First record of *O. megnini* in the Belgian Congo (Democratic Republic of Congo). Larvae and nymphs collected in July 1949 from horses.)
- Schoenaers, F. (1951) Liste des tiques récoltées au cours d'un voyage d'études au Congo Belge. *Bulletin Agricole du Congo Belge*, 42, 117-122. (Photo of larva and nymph of *O. megnini*, p. 118.)
- Schulze, P. (1935) Zur vergleichenden Anatomie der Zecken. Das Sternale, die Mundwerkzeuge, Analfurchen und Analbeschilderung und ihre Bedeutung, Ursprünglichkeit und Luxurieren. *Zeitschrift für Morphologie und Ökologie der Tiere*, 30, 1-40. (*O. megnini* has a clearly defined palpal tarsus, and figure of leg tarsus one, fig. 30.)
- Schulze, P. (1936) Sind Säugetiere die ursprünglichen Zeckenwirte? *Zoologischer Anzeiger*, 114, 19-24. ("Only the nymphs of *Ornithodoros megnini* (Dugès 1883) feed for weeks on mammals; the sexual stages of this argasid do not feed".)
- Schulze, P. (1938) Durch Raummangel bedingte Hemmungerscheinungen an einzelnen Körperteilen in der Ruhenymphe der Ixodiden und das Auftreten entsprechender Bildungen als Art- und Gattungsmerkmal. *Zeitschrift für Morphologie und Ökologie der Tiere*, 33, 445-495. (p. 447, photograph of *Otobius megnini* nymph.)
- Schulze, P. (1941) Das Geruchsorgan der Zecken. Untersuchungen über die Abwandlungen eines Sinnesorgans und seine stammesgeschichtliche Bedeutung. *Zeitschrift für Morphologie und Ökologie der Tiere*, 37, 491-564. (Photographs and discussion, pp. 539-542, of *O. megnini* Haller's organ.)
- Schulze, P. (1942) Die Gestaltung des Mitteldarmes bei den Zecken und die Einrichtungen für die Körperdehnung bei der Blutaufnahme (nebst Beiträgen zur Lebensgeschichte der Ixodoidea). *Zeitschrift für Morphologie und Ökologie der Tiere*, 39, 320-368. (p. 350, mention that adults of *O. megnini* do not feed and that the nymphal feeding must provide the material for molting to the adult stage and also for the production of 800 eggs by the female.)
- Schwartz, B. (1930) Parasites and parasitic diseases of horses. *United States Department of Agriculture Circular*, 148, 1-54. (*O. megnini*, pp. 45-48, not verified.)
- Schwartz, B. (1947) Livestock and poultry parasite investigations. *Report of the Chief of Bureau of Animal Industry. Annual Reports of Department of Agriculture, 1945-1946*, 49-59. (Nearly 3,200 cattle were treated for the control of *O. megnini* by using (all parts by weight) benzene hexachloride (5 parts); xylol (10 parts); pure steam-distilled pine oil (85 parts). Aside from being easy to prepare and use, it is effective and leaves the ears free of debris.)

- Schwartz, B., Imes, M. & Foster, A. O. (1948) Parasites and parasitic diseases of horses. *United States Department of Agriculture Circular*, 148, 1-56. (*O. megnini*, pp. 50-52, fig. 31.)
- Schwartz, B., Imes, M. & Wright, W. H. (1930) Parasites and parasitic diseases of horses. *United States Department of Agriculture Circular*, 148, 1-54. (*O. megnini*, pp. 47-48, fig. 31.)
- Schwartz, B., Imes, M. & Wright, W. H. (1933) Parasites and parasitic diseases of horses. *United States Department of Agriculture Circular*, 148, 1-54. (Revision of the above circular.)
- Schwartz, B., Imes, M. & Wright, W. H. (1942) Parasites and parasitic diseases of horses. *United States Department of Agriculture Circular*, 148, 1-55. (*O. megnini*, pp. 46-47, fig. 31. Slightly revised from the above circular.)
- Schwartz, P. H. (ed.) (1982) Guidelines for the control of insect and mite pests of foods, fibers, feeds, ornamentals, livestock, and households. *United States Department of Agriculture, Agricultural Research Service, Agriculture Handbook*, No. 584, 734 pp. (*O. megnini*, p. 552, recommended insecticides are Coumaphos, fenvalerate, ronnel, and stirofos.)
- Scott, D. W. (1980) External ear disorders. *Journal of the American Animal Hospital Association*, 16, 426-433. (*O. megnini* is geographically restricted to the southwest United States and rarely parasitizes cats. He goes on to cite where the eggs are laid and that larvae will feed on blood, tissue fluids and, "the epithelial lining of the external ear canal".)
- Scott, D. W. (1988) *Large animal dermatology*. Philadelphia, W. B. Saunders. (*O. megnini*, pp. 233-234.)
- Scott, H. G. (1967) Dog ectoparasites. *Pest Control*, 35, 15-18. (*O. megnini* is found in the arid regions of the western half of the United States. Nymphs secrete themselves in ear folds or deep in the ear canal, even against the ear drum. Sometimes ear canals are packed with ticks.)
- Seifert, H. (1959) Bekämpfung der Ekto- und Endoparasiten bei Rindern und Schafen in Perú. *Veterinär-Medizinische Nachrichten*, 3, 118-135. (*O. megnini*, p. 118.)
- Sen, P. (1938) A check- and host-list of Ixodoidea (ticks) occurring in India. *Indian Journal of Veterinary Science and Animal Husbandry*, 8, 133-147. (*O. megnini* reported from horses in the Central Provinces, Ahmednagar and Saugor; Jubbulpore and Trimulgherry.)
- Sen, S. K. (1937) The occurrence of spinose ear tick (*Ornithodoros megnini*) in India. *Proceedings of the 24th Indian Science Congress*, (Hyderabad), pp. 394-395. (Speculation on how the tick was introduced into India; 1. with artillery mules from North America; 2. from Australia where, however, *O. megnini* is not known to occur (see Kingston, 1936); 3. with stock coming from South Africa where the tick was first seen in 1898.)
- Sen, S. K. (1937) The occurrence of spinose ear tick *Ornithodoros megnini* (Dugès) in India. *Indian Journal of Veterinary Science and Animal Husbandry*, 7, 213-218. (Expansion of Kingston, 1936 and the article immediately above. *O. megnini* now known from Saugar, Mhow and Ahmednagar.)
- Sen, S. K. & Bainbrigge-Fletcher, T. (1962) *Veterinary entomology and acarology for India*. New Delhi, Indian Council of Agricultural Research. viii + 668 pp. (*O. megnini*, pp. 463-465, pl. xlv.)
- Senger, C. M. (1959) Notes on the ecto and endoparasites of the Rattlesnake deer herd. *Proceedings of the Montana Academy of Science*, 18, 33. (*O. megnini* present in a deer herd in the Rattlesnake Canyon near Missoula, Montana.)
- Senger, C. M. (1963) Some parasites of Montana deer. *Montana Wildlife*, Autumn, 5-13. (Popular account of deer parasites, including *O. megnini*.)
- Service, M. W. (1980) *A guide to medical entomology*. London, Macmillan. viii + 226 pp. (*O. megnini*, p. 154, occasionally bites man; nymphs will attach for as long as 121 days.)
- Shaw, J. N. (1947) Some parasites of Oregon wildlife. *Oregon Agricultural Experiment Station Technical Bulletin*, 11, 1-16. (*O. megnini* present in Oregon.)

- Sheals, J. G. (1973) Arachnida (Scorpions, spiders, ticks, etc.) In, Smith, K. G. V. (ed.) *Insects and other arthropods of medical importance*. London, Trustees of the British Museum (Natural History). pp. 417-472. (*O. megnini*, p. 449, a serious pest of cattle, inhabits the warmer areas of North and South America and in Africa and India.)
- Shipley, A. E. (1914) Insects and war. IX. Ticks. *British Medical Journal*, Nov. 14, 850-851. (Shipley said that he assisted in identifying 2 nymphal ticks taken in Cambridge from the ear of an American visitor who had been camping in Arizona. The tick was *O. megnini* - see also Simpson, 1901 and Wheler, 1906.)
- Shipley, A. E. (1915) *The minor horrors of war*, 2nd ed. London, Smith, Elder & Co. 178 pp. (pp. 128-129, repetition of the information given in Shipley, 1914.)
- Shishido, W. H. (1969) Myiasis of new-born calves in Hawaii. *Proceedings of the Hawaiian Entomological Society*, 20, 435-438. (Reference to Zimmermanns 1944 finding of *O. megnini* and blowflies in cows ears.)
- Shull, W. E. & Holm, G. C. (1944) *Idaho Extension Circular*, 83 (revised), 4 (*O. megnini* reference not verified.)
- Silva-Goytia, R. & Elizando, A. (1952) Estudios sobre fiebre manchada en México. II. Parásitos hematófagos encontrados naturalmente infectados. *Revista Medicina Mexico*, 32, 278-282. (*O. megnini*, table 1, p. 279. There were 6 collections of this species; none were infected with the spotted fever rickettsia.)
- Simms, B. T. (1946) *Report of the chief of the Bureau of Animal Industry, Agricultural Research Administration, 1945*. Washington, D. C., United States Department of Agriculture. v + 66 pp. (*O. megnini* in the ears of cattle in the Rio Grande Valley of Texas were controlled for more than 3 weeks with an emulsion of 0.25% BHC (30% gamma isomer).)
- Simms, B. T. (1947) *Report of the chief of the Bureau of Animal Industry, Agricultural Research Administration, 1946*. Washington, D. C., United States Department of Agriculture. 84 pp. (By April 1947 nearly 3,200 cattle were treated experimentally for the control of *O. megnini* with a mixture of 5 parts by weight BHC, 10 parts xylene and 85 parts pure steam-distilled pine oil. It killed ticks and prevented reinfestation for more than 17 but less than 24 days.)
- Simpson, J. C. (1901) Case of a parasite-*Argas* (or *Ornithodoros*) *megnini* Dugès-in each ear. (With a note on the anatomy of the specimen by E. G. Wheler). *Lancet*, (4052), 1, 1197-1198. (Two nymphs in the ears of an American visitor to the United Kingdom. He had been camping in Arizona.)
- Sloss, M. W. & Kemp, R. L. (1978) *Veterinary clinical Parasitology*, 5th ed. Ames, Iowa. Iowa State University Press. vii + 274 pp. (*O. megnini*, p. 161, fig. 3.64, p. 199, is a pest of horses and cattle, and most prevalent in the southwestern United States.)
- Sloss, M. W., Kemp, R. L. & Zajac, A. M. (1994) *Veterinary Clinical Parasitology*, 6th ed. Ames, Iowa, Iowa State University Press, x + 198 pp. (*O. megnini*, p. 130, fig 4.39, p. 155, larvae and nymphs are found in the ears of livestock, principally in the southern United States.)
- Smith, H. H., Janssen, R. J., Mail, G. A. & Wood, S. A. (1969) Arbovirus activity in southern Arizona. *American Journal of Tropical Medicine and Hygiene*, 18, 448-454. (In a survey for arboviruses from 1963-1966, 929 *Otobius megnini* were collected from cattle, horses, dogs, cats, man, deer and rabbits. None were positive for viruses.)
- Smith, K. W. (1937) Common ailments and first-aid treatment of livestock. *New Mexico College of Agriculture and Mechanic Arts, Agricultural Extension Service Circular*, 153, 1-39. (*O. megnini*, p. 33, is common in New Mexico on all classes of farm animals. Damage is caused by constant irritation, and poorly nourished cattle may succumb from heavy infestations.)
- Smith, J. S. (1977) *A survey of ticks infesting white-tailed deer in 12 southeastern states*. Master of

- Science Thesis, University of Georgia, 60 pp. (*O. megnini* (Table 1) on white-tailed deer in Montana.)
- Smith & Benner. (1943) *New Mexico Extension Circular*, 153(revised), 34 (*O. megnini* reference not verified.)
- Smith, R. C. & Kelly, E. G. (1937) The sixth annual insect population summary of Kansas covering the year 1936. *Journal of the Kansas Entomological Society*, 10, 113-132. (*O. megnini* was reported to be plentiful, especially in western Kansas, during the winter of 1935-1936, and again in the autumn of 1936.)
- Smith, R. C. & Kelly, E. G. (1944) The thirteenth or 1943 annual insect population summary of Kansas. *Journal of the Kansas Entomological Society*, 17, 81-103. (*O. megnini* occurred moderately in some cattle herds during October. For the year they were less numerous and annoying than last year, or normally.)
- Snipes, B. T. (1948) Beef cattle freed of lice in one treatment control. *Agricultural Chemistry*, 3, 30-34, 79, 81. (Each ear of 9 cattle were infested with 10-15 *O. megnini*, and treated with an emulsion of piperonyl butoxide and pyrethrins. After 15 days, 8 animals were free of ticks, the other had one.)
- Sonenshine, D. E. (1991) *Biology of Ticks*. Volume 1. New York, Oxford University Press. xix + 447 pp. (*O. megnini*, p. 37, figs. 2.25-2.27.)
- Sonenshine, D. E. (1993) *Biology of Ticks*. Volume 2. New York, Oxford University Press. xvii + 465 pp. (*O. megnini*, p. 67, parasitizes wide-ranging, roaming mammals, primarily ungulates, in arid and semi-arid areas of the world.)
- Sonenshine, D. E., Clifford, C. M. & Kohls, G. M. (1966) The systematics of the subfamily Ornithodorinae (Acarina: Argasidae) III. Identification of the larvae of the Eastern Hemisphere. *Annals of the Entomological Society of America*, 59, 92-122. (*O. megnini* larval key, p. 93, footnote 3.)
- Soulsby, E. J. L. (1982) *Helminths, arthropods and protozoa of domesticated animals*, 7th ed. Philadelphia, Lea & Febiger. xi + 809 pp. (*O. megnini*, pp. 453-454, figs. 2.87, 2.88, distribution, life cycle and habits, pathogenesis, diagnosis, treatment and prophylaxis.)
- Soundararajan, C., Kumar, R. A. & Iyue, M. (2000) *Otobius megnini* infestation in dogs in Nilgiris. *Journal of Veterinary Parasitology*, 14, 8. (The overall incidence of *O. megnini* was 19.2% in 52 dogs examined in Nilgiris, Tamil Nadu, India. The infested dogs were from a sheep farm and may have been infested because of close association with sheep.)
- Spackman, E. & Lloyd, J. E. (1971) Control of insects on beef cattle. *University of Wyoming Agricultural Extension Service Bulletin*, 544, 1-16. (For the control of *O. megnini*, a 5% ronnel (Korlan) dust is recommended applied inside the ears of cattle with a plastic squeeze bottle.)
- Spackman, E. & Lloyd, J. E. (1978) Control of insect pests of beef cattle. *University of Wyoming Agricultural Extension Service Bulletin*, 544R, 1-20. (For the control of *O. megnini*, coumaphos (Co-Ral) at a 0.125% concentration spray or dip is recommended.)
- Spackman, E. & Lloyd, J. E. (1980) Control of insect pests of beef cattle. *University of Wyoming Agricultural Extension Service Bulletin*, 544R, 1-20. (Acaricide recommendations for ticks including *O. megnini* are given in tabular form.)
- Squire, F. A. (1972) Entomological problems in Bolivia. *Pest Articles and News Summaries*, 18, 249-268. (*O. megnini*, p. 262, mentioned as one of the 2 argasid ticks found in Bolivia.)
- Stanton, J. C. (1958) Spinous [sic] ear tick in a mare. *Southwestern Veterinarian*, 11, 140-141. (A large specimen of *O. megnini* was found in the ear of a 13 year albino mare used as a child's pony. The tick was attached to the tympanic membrane.)
- Steinhaus, E. A. (1946). *Insect microbiology*. Ithaca, New York, Comstock Publishing Co. x + 763

- pp. (*O. megnini*, p. 13, table 1; p. 53.)
- Stiles, C. W. (1914) Diseases caused by animal parasites (exclusive of protozoan infections). In, Osler, W. & McCrae, T. (eds.) *Modern medicine its theory and practice*. Vol. II. Philadelphia, Lea & Febiger. pp. 217-328. ("The spinose ear tick (*Ornithodoros megnini*) is an American species which enters the ears of cattle, deer, dogs, and swine, and occasionally of man, causing considerable suffering. It can best be removed by pouring some bland oil into the ear".)
- Stiles, C. W. & Hassall, A. (1901) Notes on parasites 55-57. 55: A pupa-like stage in the development of the spinose ear tick (*Ornithodoros megnini*) of cattle. *Bureau of Animal Industry, United States Department of Agriculture, Circular No. 34*, 1-2. ("The white pyriform structures are, accordingly, the transition stage from the hexapod embryo of *Ornithodoros megnini* to the smallest octopod form of Marx's *Rhynchoprium spinosum*".)
- Stiles, C. W. & Hassall, A. (1927) Key-catalogue of the Crustacea and arachnoids of importance in public health. *United States Public Health Service Hygienic Laboratory Bulletin*, 148, 197-289. (*O. megnini*, p. 251, listed from U.S.A., Mexico and South Africa.)
- Stiles, G. W. (1929) Investigations on anaplasmosis in cattle. *Journal of the American Veterinary Medical Association*, 74, 704-723. (Brief mention of *O. megnini*, p. 711.)
- Stiles, G. W. (1944) Isolation of the *Bacillus anthracis* from spinose ear ticks *Ornithodoros megnini*. *American Journal of Veterinary Research*, 5, 318-319. (*Bacillus anthracis* isolated from a colony of *O. megnini* attached to the ear of a cow that died of anthrax.)
- Stoenner, H. G. (1980) Q fever. In, Steele, J. H. (ed.-in chief) *CRC handbook series in zoonoses*. Vol. II. Boca Raton, FL, Chemical Rubber Co. Press. pp. 337-352. (*Coxiella burnetii* has been found naturally infecting 15 species of *Hyalomma*, 10 of *Ixodes*, 10 of *Haemaphysalis*, 9 of *Dermacentor*, 9 of *Rhipicephalus*, 7 of *Ornithodoros*, 4 of *Amblyomma*, 2 of *Boophilus*, 2 of *Argas* and *O. megnini*.)
- Stoker, M. G. P. & Marmion, B. P. (1955) The spread of Q fever from animals to man. *Bulletin of the World Health Organization*, 13, 781-806. (Several references to *O. megnini* in California, but because it is a one host tick, it would be an inefficient vector unless transovarial transmission of *Coxiella burnetii* is proved.)
- Story, C. (1920) The spinose ear tick. Practical suggestions for suppression. *Union of South Africa Journal Department of Agriculture*, 1, 647-654. (Reprinted from Farmer's Weekly 10 December 1919, p. 1977.) (The favorite hiding place for *O. megnini* appears to be loose dry manure.)
- Stricker, K. W. (1993) *Internal anatomy and salivary gland ultrastructure of the spinose ear tick (Otobius megnini Dugès) with notes on water vapor uptake and salivary gland degeneration*. Ph.D. dissertation, Oklahoma State University, Stillwater, Oklahoma. ix + 154 pp.
- Strickland, R. K., Gerrish, R. R., Hourrigan, J. L. & Schubert, G. O. (1976) *Ticks of veterinary importance*. United States Department of Agriculture Handbook No. 485, 122 pp. (*Otobius megnini*, p. 31, 51-52, plates 4-6.)
- Strickland, R. K., R. R. Gerrish & J. S. Smith. (1981) Arthropods. In, Davidson, W. R. (ed.) *Diseases and parasites of white-tailed deer*. Miscellaneous Publication No. 7, Tall Timbers Research Station, Tallahassee, FL. pp. 363-389. (*O. megnini* has been reported several times from white-tailed deer.)
- Sugden, L. G. (1961) The California Bighorn in British Columbia. *British Columbia Department of Recreation and Conservation Bulletin, Victoria*: Queen's Printers, 1961, 43. (*O. megnini* reference not verified.)
- Sugimoto, M. (1936) Ticks and the role they play in the transmission of diseases. *Journal of the Taihoku Society of Agriculture and Forestry*, 1, 245-250. (Brief mention of the nymph of *O. megnini*.)
- Swartzell, R. P. (1996) Preliminary results of a tick surveillance program in selected areas of San

- Joaquin County. *Proceedings and Papers of the 64th Annual Conference of the California Vector Control Association*, 64, 116-117. (Five tick species were recorded from San Joaquin County: *Ixodes pacificus*, *Dermacentor occidentalis*, *D. variabilis*, *Rhipicephalus sanguineus* and *O. megnini*. The specific epithet was misspelled *maegnini*.)
- Sweatman, G. K. (1984) Diseases of wildlife. In, Nutting, W. B. (ed.) *Mammalian diseases and arachnids*. Vol II. Boca Raton, FL. CRC Press. Chapter 8, pp. 189-232. ("Almost all active tick stages feed, but the adult *Otobius megnini* does not.")
- Tagle, I. (1953) Parásitos de los animales domésticos en Chile determinados en el Instituto de Investigaciones Veterinarias. *Apartado de Agricultura Técnica*, 13, 93-108. (*O. megnini* on horses and cattle in Chile.)
- Tagle, I. (1966) Parásitos de los animales domésticos en Chile. *Boletín Chileno de Parasitología*, 21, 118-123. (*O. megnini* on horses and cattle in Chile.)
- Tagle, I. (1971) Ixodoidea en Chile. *Boletín Chileno de Parasitología*, 26, 46-49. (*O. megnini* frequently found on cattle and horses. Occasionally it may attack humans.)
- Tarshis, I. B. (1960) The control of the spinose ear tick, *Otobius megnini* (Duges, [sic] 1883), infesting horses, mules and cattle with 2 percent Dibrom-SG 67. (Program and Abstract, 35 Annual Meeting, American Society of Parasitologists, Los Angeles, November 2-5). *Journal of Parasitology*, 46, Sect. 2, Supplement: 6. (The sorptive dust SG 67, impregnated with 2% Dibrom 8 Emulsive, was found to be effective for the control of *O. megnini*.)
- Tarshis, I. B. (1960) Control of the snake mite (*Ophionyssus natricis*), other mites, and certain insects with sorptive dust, SG 67. *Journal of Economic Entomology*, 53, 903-908. (Rapid death of many arthropods, including *O. megnini*, has been accomplished due to dessication by adsorption of the lipid layer by SG 67.)
- Tarshis, I. B. (1961) Laboratory and field studies with sorptive dusts for the control of arthropods affecting man and animals. *Experimental Parasitology*, 11, 10-33. (Rapid death of numerous arthropods, including *O. megnini*, was accomplished experimentally through dessication.)
- Tarshis, I. B. (1962) Spinose ear tick of livestock controlled with SG 67-phosphate. *California Agriculture*, 16, 5.
- Tarshis, I. B. (1967) Silica aerogel insecticides for the prevention and control of arthropods of medical and veterinary importance. *Angewandte Parasitologie*, 8, 210-237. (Control of numerous arthropods, including *O. megnini*, with SG 67 and MEA 797.00 silica aerogels.)
- Tarshis, I. B. & Ommert, W. D. (1961) Control of the spinose ear tick, *Otobius megnini* (Duges) [sic] with an organic phosphate insecticide combined with a silica aerogel. *Journal of the American Veterinary Medical Association*, 138, 665-669. (The insecticide was 2% dimethyl 1,2-dibromo-2,2-dichloroethyl phosphate.)
- Taylor, W. (1938) Report of the protozoology section. *Report of the Imperial Veterinary Research Institute Mukteswar, (1936-1937)*, 41-47. (*O. megnini* reference not verified.)
- Teel, P. D. (1985). Ticks. In, Williams, R. E., Hall, R. D., Broce, A. B. & Scholl, P. J. (eds.) *Livestock entomology*, New York, John Wiley & Sons. pp. 129-149. (*O. megnini*, p. 149, distribution, hosts, biology.)
- Temple, I. U. (1912) Acute ascending paralysis, or tick paralysis. *Medical Sentinel*, 20, 507-514 (Nymphal *O. megnini* found in the ear of a man. This is the first record from Oregon. See also Nuttall, 1914.)
- Theiler, A. (1917) Veterinary research: Annual Report of the Director 1915-1916. *Report Union of South Africa Department of Agriculture for the year ended 31st March 1916, Capetown*, pp. 45-49. (*O. megnini* first observed in 1912, and has been prevalent in various parts of the Union.)
- Theiler, A. (1921) Diseases, ticks and their eradication. *Journal Department of Agriculture Union*

- of South Africa, No. 6, 1-20. (*O. megnini* found in dry areas. Dipping is useless for the eradication of this tick species.)
- Theiler, A. (1921) Siektes, bosluise en die bestry daarvan. *Joernal van die Departement van Landbou Unie van Suidafrika*, No. 6, 1-22 (Same as above but in Afrikaans.)
- Theiler, G. (1949) Ticks. *South African Biological Society Pamphlet*, No. 14, 1-37. (Brief mention of *O. megnini*, p. 30.)
- Theiler, G. (1952) List of standardized tick names for South Africa. *Farming in South Africa*, reprint No. 49, 1-3. (Common name for *O. megnini* is the spinose ear tick.)
- Theiler, G. (1962) *The Ixodoidea parasites of vertebrates in Africa south of the Sahara*. Project S.9958. Report to the Director of Veterinary Services, Onderstepoort. viii + 260 pp. (*Otobius megnini*, pp. 23-24. Present in Belgian Congo (Democratic Republic of Congo), Nyasaland (Malawi), Mocambique, Southern Rhodesia (Zimbabwe), Bechuanaland (Botswana), South West Africa (Namibia), Basutoland (Lesotho) and South Africa. She states, "O. megnini is an introduction from Mexico.")
- Theiler, G. (1963) African ticks: The complexity of their host-encounter relationship: Disease and control. *Report 2nd Meeting FAO/OIE Expert Panel on Tick-borne Diseases of Livestock, Cairo 3-10 Dec. 1962*, 45-52. ("Tortoises have been recorded as hosts to the mammalian *Hyalomma truncatum* (A.I.), *Otobius megnini* and the burrow dwelling *Ornithodoros moubata* and *Rhipicephalus theileri*.")
- Theiler, G. (1964) Ecogeographical aspects of tick distribution, In, Davis, D. H. S. (ed.) *Ecological studies in southern Africa*. The Hague, Uitgeverij Dr. W. Junk. Monographiae Biologicae Vol. XIV. pp. 284-300. (*O. megnini*, p. 287, found throughout the rainfall area of the Karoo, and absent from areas with 40+ inches of annual rainfall.)
- Theiler, G. & Robinson, B. N. (1954) Tick survey VIII. Checklists of ticks recorded from the Belgian Congo and Ruanda Urundi, from Angola, and from Northern Rhodesia. *Onderstepoort Journal of Veterinary Research*, 26, 447-461, 3 maps. (*O. megnini* found in the Belgian Congo (Democratic Republic of Congo), possibly introduced from South Africa.)
- Theiler, G. & Salisbury, L. E. (1958) Zoological survey of the Union of South Africa. Tick Survey: Part XI. The distribution of *Otobius megnini*, the spinose ear tick. *Onderstepoort Journal of Veterinary Research*, 27, 605-610, one map. (The species is absent from areas of high rainfall, but neither temperature nor altitude appears to play a limiting role in its distribution.)
- Theodor, O. & Costa, M. (1960) New species and new records of Argasidae from Israel. Observations on the rudimentary scutum and the respiratory system of the larvae of the Argasidae. *Parasitology*, 50, 365-386. (*O. megnini*, p. 382, fig. 28d, illustration of chelicera.)
- Thompson, G. B. (1950) Ticks of Jamaica, B. W. I. Records and notes (including a summary of the distribution of the West Indian species). *Annals and Magazine of Natural History*, Series 12, 3, 220-229. (*O. megnini* is not known from Jamaica but is cited in a table as present in the U.S.A., Mexico, Central America, South America, and Cuba.)
- Thomssen, E. G. & Doner, M. H. (1943) Livestock insect control. A study of insects which attack livestock and means for their practical control. Part II. *Soap and Sanitary Chemicals*, 19, 131-141. (In a table on common crawling insects attacking livestock, the duration of the egg stage of *O. megnini* is listed as 21 days.)
- Tipton, V. J. & Saunders, R. C. (1971) A list of arthropods of medical importance which occur in Utah with a review of arthropod-borne diseases endemic in the state. *Brigham Young University Science Bulletin, Biological Series*, 15, 1-31. (*O. megnini*, p. 7, listed a one of the tick species found in Utah.)
- Toomey, N. (1921) Otiobiosis (ear tick disease). *Laryngoscope*, 31, 930-937. (General history, early

- records and Dr. Toomey's removal of *O. megnini* from the ear of a soldier stationed at Camp Stewart near El Paso, Texas in 1916.)
- Torreggiani, G. (1912) Zooparásitos del altiplano Boliviano. *Revista del Jardín Zoológico de Buenos Aires Series*, 2, 8, 129-152. (Original description and figure of *Otophilus asini*, a junior synonym of *Otobius megnini*.)
- Torreggiani, G. (1914) Osservati nella fauna boliviana. *Il Nuovo Ercolani Archivio di Veterinaria e Zootechnia*, 19, 417-425. (Distribution and hosts of *O. megnini*, p. 420, and mention that his genus *Otophilus* should now be considered a subgenus of *Ornithodoros* and recognition that *Otophilus asini* is a synonym of *Ornithodoros megnini*.)
- Toumanoff, C. (1944) *Les tiques (Ixodoidea) de l'Indochine*. Saigon, Institut Pasteur de l'Indochine, S.I.L.I. 220 pp. (*O. megnini* briefly mentioned because of its feeding habits, p. 137.)
- Townsend, C. H. T. (1893) Ticks in the ears of horses. *Journal of the New York Entomological Society*, 1, 49-52. (An unnamed tick species, but obviously *O. megnini*, from a bronco, Las Cruces, New Mexico, March 1891. A Las Cruces physician on several occasions collected these ticks from the ears of children.)
- Townsend, C. H. T. (1913) The possible and probable etiology and transmission of verruga fever. *Journal of Economic Entomology*, 6, 211-225. (Townsend collected *O. megnini* in the Chosica region of Peru.)
- Travis, B. V. & Labadan, R. M. (1967) Arthropods of medical importance in Latin America. Part II. *Technical Report United States Army Natick Laboratories*, 68-30-ES, i-x, map, 217-491. (*O. megnini*, p. 463, found in Argentina, Brazil, Cuba and Mexico, and occasionally bites man.)
- Travis, B. V., Labadan, R. M. & Lee, H. H. (1968) Arthropods of medical importance in Australia and the Pacific islands. *Technical Report United States Army Natick Laboratories*, 68-61-ES, i-xiii, map, 1-244. (*O. megnini*, p. 223, found in the Hawaiian Islands.)
- Travis, B. V., Lee, H. H. & Labadan, R. M. (1969) Arthropods of medical importance in America north of Mexico. *Technical Report United States Army Natick Laboratories*, 69-2-ES, i-xiii, map, 1-335. (*O. megnini*, p. 311, found in the United States and Canada, and occasionally bites man.)
- Travis, B. V., Mendoza, C. E. & Labadan, R. M. (1967) Arthropods of medical importance in Africa - Part II. *Technical Report United States Army Natick Laboratories*, 67-55-ES, i-vi, map, 359-804. (*O. megnini*, p. 716 (as *Argas megnini*), found in the Democratic Republic of Congo and South Africa, p. 751, found in Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa and Zimbabwe.)
- Turk, R. D. (1951) Diagnosis of parasitism. *North American Veterinarian*, 32, 250-254. (Spinose ear ticks are sometimes present in considerable numbers, and they should be checked for especially in animals originating in the arid sections of southwestern U.S.A.)
- Udall, D. H. (1936) *The practice of veterinary medicine*. 2nd ed. New York, published by the author. 273 pp. (*O. megnini*, p. 130.)
- Ugochukwu, E. I. & Nnadozie, C. C. (1985) Ectoparasitic infestation of dogs in Bendel State, Nigeria. *International Journal of Zoonoses*, 12, 308-312. (Of 820 dogs examined between January and December 1983, 10.48% were parasitized by *O. megnini*.)
- Uilenberg, G. (1964) Notes sur les Hématozoaires et tiques des animaux domestiques à Madagascar. *Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 17, 337-359. (*O. megnini* is one of 13 tick species found on domestic animals on Madagascar.)
- Uilenberg, G. (1965) Note sur la sensibilité de la tique *Otobius megnini* (Dugès, 1883) (Argasidae) à différents insecticides; emploi du Sevin® (1-Naphthyl-N-Méthyle-Carbamate) dans la lutte contre cette tique. *Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 18, 89-94.

- (Adult *O. megnini* are unaffected by concentrations of Sevin and D.D.T. that would be active against other tick species.)
- Uilenberg, G. (1967) Note sur la piroplasmose équine à Madagascar. *Revue d'Élevage et de Médecine Vétérinaire des Pays Tropicaux*, 20, 497-500. (The vector of equine piroplasmosis remains unknown, but tick species found on horses are *Amblyomma variegatum* and *Boophilus microplus* in the Tananarive area. Both horses and stables were infested with *O. megnini*.)
- Uilenberg, G., Hoogstraal, H. & Klein, J. M. (1979) Les tiques (Ixodoidea) de Madagascar et leur rôle vecteur. *Archives de l'Institut Pasteur de Madagascar Numéro Spécial*, 1-153. (*O. megnini* was introduced into Madagascar and is now a serious pest of domestic animals in Tananarive Province.)
- Union of South Africa Department of Agriculture. (1914) Editorial notes. Ticks and Lamziekte. *Agricultural Journal of the Union of South Africa*, 8,1-3. (Two or 3 years ago Sir Arnold Theiler found a species of tick on a cow suffering from lamziekte (botulism) in Vryburg. This tick was subsequently identified as *O. megnini*. It is uncertain whether the tick was introduced from America, but it could have happened after the Boer War when thousands of Texas cattle were imported into South Africa.)
- United States Department of Agriculture. (1909) Special report on diseases of cattle, revised edition, 1908. *Bureau of Animal Industry*, 551 pp. (*O. megnini*, p. 505, treatments include a 20% emulsion of crude petroleum distillate poured into the ears of cattle.)
- United States Department of Agriculture. (1960) Insects affecting man and animals. *Co-operative Economic Insect Report*, 10, 970-971. (*O. megnini* is still being found on untreated native cattle in a herd near Porcupine, South Dakota)
- United States Department of Agriculture. (1962) Report of cooperative cattle fever tick eradication activities fiscal year 1962. *Animal Disease Eradication Division, Agricultural Research Service*, 14 pp. (Issued October 11, 1962, revised November 20, 1962). (*O. megnini* found in Arizona, Arkansas, Florida, Hawaii, Idaho, Kansas, Nevada, New Mexico, Texas, and Utah on cattle, sheep and horses.)
- United States Department of Agriculture. (1963) Report of cooperative tick eradication activities fiscal year 1963. *Animal Disease Eradication Division, Agricultural Research Service*, 7 pp. (Issued August 15, 1963). (*O. megnini* was among 3,021 lots of ticks collected in the U.S.A. in calendar year 1962 in a nationwide tick survey.)
- United States Department of Agriculture. (1964) National tick survey calendar year 1963. *Animal Disease Eradication Division, Agricultural Research Service*, 7 pp. (Issued November 9, 1964). (228 *O. megnini* were collected on cattle, 31 on horses or mules, 19 on dogs, and in Arkansas and Texas on coyote and antelope, respectively.)
- United States Department of Agriculture. (1965) National tick survey - CY 1964. *Animal Disease Eradication Division, Agricultural Research Service*, 7 pp. (Issued March 2, 1965). (A total of 214 *O. megnini* were collected on cattle in Arizona, Arkansas, California, Colorado, Hawaii, Idaho, Kansas, Louisiana, Mississippi, Missouri, Montana, Nevada, New Mexico, Oklahoma, Oregon, Texas, Washington, and Wyoming in 1964.)
- United States Department of Agriculture. (1966) National tick surveillance program calendar year 1965. *Animal Health Division, Agricultural Research Service*, 15 pp. (Issued May 10, 1966). (A total of 337 *O. megnini* were collected on cattle in Arizona, Arkansas, California, Colorado, Hawaii, Kansas, Louisiana, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, Oklahoma, Tennessee, Texas, Utah, Virginia, and Washington in 1965. It was also collected on cats, sheep, goats, dogs, horses and mules, and imported bovines.)
- United States Department of Agriculture. (1967) National tick surveillance program calendar year 1966. *Animal Health Division, Agricultural Research Service*, 15 pp. (Issued June 1, 1967). (A

- total of 119 *O. megnini* were collected on cattle in Arizona, California, Hawaii, Kansas, Nevada, New Mexico, Ohio, Oklahoma, Oregon, Tennessee, Texas, Utah, and Washington in 1966. It was also collected on humans, sheep, dogs, horses and mules and imported equines and bovines.)
- United States Department of Agriculture. (1968) Suggested guide for the use of insecticides to control insects affecting crops, livestock, households, stored products, forests and forest products. *Agricultural Research Service, Agricultural Handbook*, 331, 1-273. (Gamma benzene hexachloride recommended for the control of *O. megnini*.)
- United States Department of Agriculture. (1968) National tick surveillance program calendar year 1967. *Animal Health Division, Agricultural Research Service*, 15 pp. (Issued April 15, 1968). (A total of 133 *O. megnini* were collected on cattle in Arizona, Arkansas, California, Colorado, Georgia, Kansas, Nevada, New Mexico, Oklahoma, Oregon, Tennessee, Texas, and Washington in 1967. It was also collected on cats, sheep, goats, dogs, horses and mules and imported bovines.)
- United States Department of Agriculture. (1969) National tick surveillance program calendar year 1968. *Animal Health Division, Agricultural Research Service*, 15 pp. (Issued June 16, 1969). (A total of 130 *O. megnini* were collected on cattle in Arizona, Arkansas, California, Colorado, Florida, Idaho, Minnesota, Missouri, Nevada, New Mexico, Oklahoma, Oregon, Tennessee, Texas, Virginia and Washington in 1968. It was also collected on sheep, goats, dogs, horses and mules and imported equines, canines, and bovines.)
- United States Department of Agriculture. (1970) National tick surveillance program calendar year 1969. *Animal Health Division, Agricultural Research Service, ARS 91-91*, 15 pp. (Issued June 1970). (A total of 78 *O. megnini* were collected on cattle in Arizona, Arkansas, Colorado, Idaho, Kansas, Nebraska, Nevada, Oklahoma, Oregon, Texas, and Utah in 1969. It was also collected on sheep, goats, dogs, horses and mules and imported bovines.)
- United States Department of Agriculture. (1971) National tick surveillance program calendar year 1970. *Animal Health Division, Agricultural Research Service, ARS 91-102*, 15 pp. (Issued July 1971). (A total of 61 *O. megnini* were collected on cattle in Alabama, Arkansas, California, Colorado, Hawaii, Kansas, Oklahoma, Oregon, and Texas in 1970. It was also collected on cats, sheep, goats, dogs, horses and mules and imported equines and bovines.)
- United States Department of Agriculture. (1972) National tick surveillance program calendar year 1971. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-8*, 14 pp. (Issued November 1972). (A total of 83 *O. megnini* were collected on cattle in Alabama, Arkansas, California, Colorado, Nebraska, Nevada, New Mexico, Oklahoma, Oregon, and Texas in 1971. It was also collected on cats, sheep, dogs, horses and mules and imported equines and bovines.)
- United States Department of Agriculture. (1973) National tick surveillance program calendar year 1972. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-12*, 15 pp. (Issued July 1973). (A total of 38 *O. megnini* were collected on cattle in Arizona, Colorado, Kansas, Missouri, Oklahoma, Oregon, Tennessee and Texas in 1972. It was also collected on cats, swine, dogs, horses and mules, and imported equines and bovines. *Otobius megnini*, p. 2, is known to be established in at least one county in eastern Tennessee.)
- United States Department of Agriculture. (1973) Cooperative state-federal tick eradication activities fiscal year 1973. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-14*, 9 pp. (Issued September 1973). (*O. megnini* collected in California on a bovine stray from Mexico, on a horse from Lima, Peru collected in Florida, and on a horse imported into Texas.)
- United States Department of Agriculture. (1974) National tick surveillance program calendar year

1973. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-22*, 15 pp. (Issued August 1974). (A total of 125 *O. megnini* were collected on cattle in California, Colorado, Kansas, Mississippi, Oklahoma, Oregon, and Texas in 1973. It was also collected on dogs, horses and mules, and imported zebra, equines and bovines.)
- United States Department of Agriculture. (1975) National tick surveillance program calendar year 1974. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-28*, 17 pp. (Issued September 1975). (A total of 200 *O. megnini* were collected on cattle in Arkansas, California, Oklahoma and Texas in 1974. It was also collected on sheep, dogs, horses and mules, and imported bovines, gemsbok, bontebok, greater kudu, blesbok and hartebeest.)
- United States Department of Agriculture. *APHIS Cooperative Plant Pest Report*, 1, 1-42. (*O. megnini* found in Oklahoma, and in Logan and Crawford Counties, Arkansas. These are new county records for this tick species.)
- United States Department of Agriculture. (1977) National tick surveillance program calendar year 1975. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-32*, 15 pp. (Issued August 1977). (A total of 86 *O. megnini* were collected on cattle in California, Georgia, New Mexico, Oklahoma and Texas in 1975. It was also collected on sheep, dogs, horses and mules, and imported cattle, horses and goats.)
- United States Department of Agriculture. (1977) National tick surveillance program calendar year 1976. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-33*, 17 pp. (Issued August 1977). (A total of 58 *O. megnini* were collected on cattle in California, Oklahoma, Oregon and Texas in 1976. It was also collected on dogs, horses and mules.)
- United States Department of Agriculture. (1978) National tick surveillance program calendar year 1977. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-35*, 17 pp. (Issued October 1978). (A total of 89 *O. megnini* were collected on cattle in Arkansas, California, Colorado, Kansas, Oklahoma, Texas and Washington in 1977. It was also collected on dogs, horses and mules, goats and imported bovines.)
- United States Department of Agriculture. (1980) National tick surveillance program calendar year 1978. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-35*, 17 pp. (Issued May 1980). (A total of 320 *O. megnini* were collected on cattle in California, Colorado, Kansas, New Mexico, Oklahoma, and Texas in 1978. It was also collected on horses and mules, imported bovines and on an ibex in New Mexico.)
- United States Department of Agriculture. (1981) National tick surveillance program calendar year 1979. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 23 pp. (Issued July 1981). A total of 393 *O. megnini* were collected on cattle in Alabama, California, Colorado, Florida, Oklahoma, and Texas in 1979. It was also collected on cats, dogs, horses and mules, and imported bovines.)
- United States Department of Agriculture. (1982) National tick surveillance program calendar year 1980 and 1981. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 35 pp. (Issued September 1982). (A total of 1004 *O. megnini* were collected on cattle in Alabama, California, Oklahoma, and Texas in 1980 and 1981. It was also collected on dogs, horses and mules, sheep, mule deer, and imported bovines.)
- United States Department of Agriculture. (1983) National tick surveillance program calendar year 1982. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 17 pp. (Issued August 1983). (A total of 123 *O. megnini* were collected on cattle in California, Idaho, Oklahoma, and Texas in 1982. It was also collected on horses and mules, and imported horses and bovines.)
- United States Department of Agriculture. (1984) Animal health. *Yearbook of Agriculture*. xli + 646 pp. (*O. megnini*, p. 572, a one-host tick with only larvae and nymphs found on horses.)

- United States Department of Agriculture. (1985) National tick surveillance program calendar year 1983. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 19 pp. (Issued February 1985). (A total of 647 *O. megnini* were collected on cattle in Texas in 1983. It was also collected on dogs, elk (originating in Craig County, Colorado and brought to South Carolina), and imported bovines.)
- United States Department of Agriculture. (1985) National tick surveillance program calendar year 1984. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 17 pp. (Issued October 1985). (A total of 438 *O. megnini* were collected on cattle in California, Oklahoma, and Texas in 1984. It was also collected on horses and mules, an introduced Corsican sheep in Texas and imported coues deer and bovines.)
- United States Department of Agriculture. (1987) National tick surveillance program calendar year 1985. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 20 pp. (Issued June 1987). (A total of 98 *O. megnini* were collected on cattle in Oklahoma and Texas in 1985. It was also collected on horses and mules, and imported bovines.)
- United States Department of Agriculture. (1987) National tick surveillance program calendar year 1986. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 19 pp. (Issued October 1987). (A total of 38 *O. megnini* were collected on cattle in Oklahoma and Texas in 1986. It was also collected on dogs and imported bovines.)
- United States Department of Agriculture. (1988) National tick surveillance program calendar year 1987. *Veterinary Services, Animal and Plant Health Inspection Service, APHIS 91-39*, 19 pp. (Issued August 1988). (A total of 41 *O. megnini* were collected on cattle in California, Oklahoma, and Texas in 1987. It was also collected on dogs, horses and mules, deer in Arkansas, an axis deer in Texas, and imported bovines.)
- United States Department of Agriculture. (1994) National tick surveillance program calendar years 1988-89. *Animal and Plant Health Inspection Service, APHIS 91-45-005*, 43 pp. (Issued June 1994). (A total of 33 *O. megnini* were collected on cattle in Arkansas, California, Colorado, Oklahoma, and Texas in 1988 and 1989. It was also collected on cats, dogs, horses and mules, mule deer and bighorn sheep in Arizona, and imported horses and bovines.)
- United States Department of Health Education and Welfare. (1978) *Ticks of public health importance and their control*. Department of Health, Education and Welfare publication No. (CDC)78-8142, 37 pp. + appendix. (*O. megnini*, p. 28, fig. 12b.)
- United States Naval Medical School. (1958) *Medical entomology*. Bethesda, Maryland. Compiled by the staff of the Entomology Division, National Naval Medical Center. viii + 342 pp. (*O. megnini*, p. 50, in the ears of horses and cattle, key, p. 53.)
- Urquhart, G. M., Armour, J., Duncan, J. L., Dunn, A. M. & Jennings, F. W. (1996) *Veterinary Parasitology*, 2nd ed. Oxford, U.K., Blackwell Science, Ltd. 307 pp. (*O. megnini*, p. 189, is found in North and South America, India and southern Africa. Incorrect statement that this tick species feeds primarily on dogs.)
- Van Volkenberg, H. L. (1929) Report of the parasitologist. *Puerto Rico Agricultural Experiment Station Report*, 1929, 26-29. (*O. megnini* reported from Puerto Rico.)
- Van Volkenberg, H. L. (1939) An annotated check list of the parasites of animals in Puerto Rico. *Puerto Rico Experiment Station Circular*, No. 22, 1-12. (Regarding the report cited immediately above, the author states, "Either a mistake was made in the determination of this tick or it has been eradicated by dipping operations against the cattle tick, for so far as is known it does not now occur in Puerto Rico.")
- Vargas, L. (1955) Relación del papel patogeno de las garrapatas y lista de las especies Mexicanas. *Gaceta Médica de México*, 85, 489-502. (*O. megnini* listed from Mexico, U.S.A., Argentina,

- Brazil, Chile, South Africa, India, and incorrectly from Australia.)
- Varma, M. R. G. (1993) Ticks and mites (Acari). In, Lane, R. P. & Crosskey, R. W. (eds.) *Medical insects and arachnids*. London, Chapman and Hall. Chapter eighteen, pp. 597-658. (*O. megnini*, p. 610, a serious pest of cattle and horses in North America from where it has been introduced into Africa and India.)
- Vercammen-Grandjean, P. H. (1973) Preliminary note to a tentative nepophylogeny of trombiculids. In, Daniel, M. & Rosicky, B. (eds.) *Proceedings of the 3rd International Congress of Acarology* (Prague, August 31- September 6, 1971). Prague, Academia Publishing House of the Czechoslovak Academy of Sciences. pp. 311-319. (*O. megnini* leg chaetotaxy, p. 316.)
- Vides Tovar, M. V. (1968) *Epidemiologia del tifo en la Republica Mexicana*. Postgraduate thesis, Escuela de Salud Publica, Universidad de San Carlos de Guatemala. iv + 159 pp. (Brief mention of *O. megnini*, p. 121.)
- Vogelsang, E. G. & Cordero, E. H. (1940) Las garrapatas [Ixodidae] de Venezuela. *Revista de Medicina, Veterinaria y Parasitologia*, 2, 71-76. (*O. megnini* was listed by Pinto (1930) as one of the tick species found in Venezuela.)
- Vogelsang, E. G. & Santos Dias, J. A. T. (1953) Contribución al estudio de la fauna ixodologica de Venezuela. *Revista de Medicina Veterinaria y Parasitologia*. Caracas, 12, 3-62. (*O. megnini*, pp. 54-57, discussion of geographical distribution, hosts, biology and pathogenicity. No details given as to where in Venezuela this tick is found.)
- Wade, L. L. (1968) The efficacy of Dursban[®] insecticide in dipping vat for control of the southern cattle tick. *Journal of Economic Entomology*, 61, 908-909. (He cites the works of Drummond using this insecticide on *O. megnini*.)
- Waladde, S. M. & Rice, M. J. (1982) The sensory basis of tick feeding behaviour, pp. 71-118. In, Obenchain, F. D. and Galun, R. (eds.) *Physiology of ticks*. Oxford, Pergamon Press. xii + 509 pp. (Unlike most argasid ticks, *O. megnini* feeds slowly and remains in the ears of its hosts during all feeding stages.)
- Walker, A. (1994) *Arthropods of humans and domestic animals. A guide to preliminary identification*. London, Chapman and Hall. xx + 213 pp. (*O. megnini*, pp. 33-34, fig. 2.8, sexes, distribution, hosts, life cycle, behavior, disease and domestic animals involved.)
- Walker, E. D., Stobierski, M. G., Poplar, M. L., Smith, T. W., Murphy, A. J., Smith, P. C., Schmitt, S. M., Cooley, T. M. & Kramer, C. M. (1998) Geographic distribution of ticks (Acari: Ixodidae) in Michigan, with emphasis on *Ixodes scapularis* and *Borrelia burgdorferi*. *Journal of Medical Entomology*, 35, 872-882. (One specimen of *O. megnini* was submitted for identification during this 12-year passive survey of ticks in Michigan. The host was a human.)
- Walker, J. B., Mehlitz, D. & Jones, G. E. (1978) *Notes on the ticks of Botswana*. Eschborn, Germany, German Agency for Technical Cooperation. 83 pp. (*O. megnini* not recorded recently from Botswana, although Bedford (1925) reported that it was widely distributed in this country.)
- Walker, M. L. & Becklund, W. W. (1970) Checklist of the internal and external parasites of deer, *Odocoileus hemionus* and *O. virginianus*, in the United States and Canada. *United States Department of Agriculture. Index-catalogue of medical and veterinary zoology. Special publication No. 1*, 45 pp. (*O. megnini* reported on deer from Arizona, California, Idaho, Montana, New Mexico, Oregon, Texas, Utah, Wyoming in the U.S.A., and British Columbia, Canada.)
- Wall, R. & Shearer, D. (1997) *Veterinary entomology. Arthropod ectoparasites of veterinary importance*. London, Chapman and Hall. xvi + 439 pp. (*O. megnini*, pp. 137-139, fig. 3.20, distribution, morphology, life cycle, pathology; p. 372, causes otitis externa with head shaking and scratching, and in severe cases, convulsions.)

- Wanchinga, D. M. (1983) *The external ultrastructure and biology of the spinose ear tick, Otobius megnini (Dugès, 1884) (Acarina: Argasidae)*. Ph.D. dissertation, Oklahoma State University, Stillwater, Oklahoma. viii + 107 pp.
- Wanchinga, D. M. & Barker, R. W. (1986) Colonization and laboratory development of *Otobius megnini* (Acari: Argasidae). *Journal of Economic Entomology*, 79, 999-1002. (Mean engorgement times for larval and nymphal *O. megnini* when fed on cattle were 4.7 ± 2.1 , and 38.2 ± 7.4 days, respectively. Moulting success of larvae and nymphs was 92.1 and 98.1%, respectively. Females were able to convert ca. 56% of their body weight to eggs.)
- Warburton, C. (1921) Ticks (Ixodoidea). In, *The practice of medicine in the tropics by many authorities*. Byam, W. and Archibald, R. G. (eds.) London, Henry Frowde and Hodder & Stoughton. Vol. I, 274-290 (*O. megnini*, pp. 275, 281, fig. 137, is a North American species recorded from Louisiana, Texas, Mexico, New Mexico, Arizona, California, Nevada, Idaho, Iowa, Kentucky, Kansas, and Nebraska.)
- Warburton, C. (1923) Ticks. *Encyclopaedia of veterinary medicine, surgery and obstetrics* 1, 479-490. (*O. megnini* is found in Mexico and the southwestern United States infesting ears of the horse, ass, and ox, and frequently enters the human ear.)
- Ward, H. B. (1900) The ticks of Nebraska. *Annual Report Nebraska State Board of Agriculture*, (1899), 193-205 (*O. megnini*, p. 199, fig 3.)
- Ward, H. B. (1900) The ticks of Nebraska. *Studies from the Zoological Laboratory The University of Nebraska*, No. 38, 193-205. (Reprint of the article immediately above.)
- Ware, F. (1937) Entomology. *Report of the Imperial Veterinary Research Institute Mukteswar (1935-1936)*, 37-39. (*O. megnini* from the ears of Australian horses was sent to the Institute from the Military Veterinary Hospital, Saugor, Central Provinces. Ware states that the occurrence of this species of tick had not been previously recorded from India - but see Kingston, 1936. Cecil Warburton, Cambridge University confirmed the identification.)
- Warner, W. B. (1993) Control of equine ectoparasites. In, Knapp, F. W. (ed.) *International symposium on ectoparasites of pets* (Lexington, Kentucky Apr. 4-6, 1993). xii, 14-104. (Brief mention of the spinose ear tick.)
- Weber, W. J. (1984) *Fleas, ticks and cockroaches - disease transmitters*. P. O. Box 9335, Fresno, CA 93791, Thomson Publications. (*O. megnini*, p. 6, not known as a disease vector, but the causative agent of Q fever has been isolated from it, and the tick can cause severe irritation.)
- Wellcome Research Organisation. (1970) *Cattle tick control*. London, Cooper Division, Wellcome Foundation Ltd. 65 pp. (*O. megnini*, p. 8, map 6, larvae and nymphs parasitic within host's ears for several months, drop to the ground, mate and produce eggs without further feeding.)
- Weyer, F. (1948) *Grundriss der Medizinischen Entomologie*. Zweite Durchgesehene. Leipzig, Johann Ambrosius Barth. viii + 132 pp. (*Otobius megnini*, p. 39, a stationary parasite; p. 40, an ear tick; p. 96, cited as the feared ear tick of cattle.)
- Weyer, F. (1953) Die Beziehungen des Q-Fieber-Erregers (*Rickettsia burneti*) zu Arthropoden. *Zeitschrift für Tropenmedizin und Parasitologie* 4, 344-382. (*O. megnini*, brief mention, p. 360, and in Table 4 citing the work of Jellison, Bell *et al.*, 1948.)
- Weyer, F. & Zumpt, F. (1952) *Grundriss der Medizinischen Entomologie*. Dritte umgearbeitete Auflage. Leipzig, Johann Ambrosius Barth. vi + 150 pp. (*Otobius megnini*, p. 40, an ear parasite; p. 110, *O. megnini* is again cited as the feared ear tick of cattle.)
- Weyer, F. & Zumpt, F. (1966) *Grundriss der Medizinischen Entomologie*. Vierte neubearbeitete Auflage. Leipzig, Johann Ambrosius Barth. viii + 173 pp. (*O. megnini*, p. 49, an ear parasite as larva and nymph, p. 51, causes nervousness and paralysis.)
- Wharton, R. H. & Roulston, W. J. (1970) Resistance of ticks to chemicals. *Annual Review of Entomology*, 15, 381-404. (*O. megnini* has been controlled for many years in North America with

- gamma benzene hexachloride.)
- Wheeler, C. M. (1935) A new species of tick which is a vector of relapsing fever in California. *American Journal of Tropical Medicine*, 15, 435-438. (*O. megnini* very briefly mentioned as being found in California.)
- Wheeler, C. M., Herms, W. B. and Meyer, K. F. (1935) A new tick vector of relapsing fever in California. *Proceedings of the Society of Experimental Biology and Medicine*, 32, 1290-1292. (*O. megnini* very briefly mentioned as being found in California.)
- Wheler, E. G. (1901) Note on a remarkable stigmatic organ in the nymph of *Ornithodoros* (or *Argas*) *megnini* (Dugès). *Lancet*, (4052), 1, 1198. (A note appended to Simpson, 1901.)
- Wheler, E. G. (1901) Note on a remarkable stigmatic organ in the nymph of *Ornithodoros megnini* (Dugès). *Journal of the Quekett Microscopical Club*, Series 2, 8, 61-62. (Specimens of *O. megnini* obtained from Simpson, 1901.)
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