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CAMBRIDGE UNIVERSITY PRESS

London: FETTER LANE, E.C.

C. F. CLAY, MANAGER

Edinburgh: 100, PRINCES STREET

London: H. K. LEWIS, 136, GOWER STREET, W.C.

Berlin: A. ASHER AND CO.

Leipzig: F. A. BROCKHAUS

New York: G. P. PUTNAM'S SONS

Bombay and Calcutta: MACMILLAN AND CO., LTD.

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TICKS

A MONOGRAPH OF THE IXODOIDEA

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BIBLIOGRAPHY OF THE IXODOIDEA

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CAMBRIDGE

at the University Press

1911

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PRINTED BY JOHN CLAY, M.A.

AT THE UNIVERSITY PRESS

PREFACE TO THE BIBLIOGRAPHY

IT was our original intention to issue the complete bibliography of the Ixodoidea after all the parts of this work had appeared, but, owing to the unavoidable delay attending the publication of the separate parts and the present need of the bibliography for purposes of reference, we find it inadvisable to retard its publication any longer.

This bibliography deals with ticks and their relation to disease; we trust that it will prove useful to workers engaged in the study of the subjects to which it relates, for it has entailed much labour owing to the literature being very scattered. Our bibliography contains 2004 titles and includes full references to all the important papers hitherto published on ticks, as well as to papers of lesser merit. A few papers dealing more especially with the diseases which ticks convey have been included because of the general information they contain and the aspect they afford of the important part which ticks play in pathology; some of these papers, moreover, contain useful bibliographies.

Since it is certain that references to future literature will be required in connection with the forthcoming parts of this work, we propose to append any such references in the form of Addenda at the end of the succeeding parts so that they can be detached and added to the main bibliography. We would advise our readers to *bind the bibliography separately*; some blank pages, provided at the end, are intended for the reception of any additional references supplied on Addenda slips.

Throughout the book the Harvard System of References to the bibliography has been adopted. Wherever an author has been cited in the text the date of publication (and usually the page) has been added in brackets. In the following bibliography the names of the authors are given in alphabetical order, the names being followed by the date

of publication, the title of the paper and the Journal, etc. where the paper was published. The Roman numerals after the name of the Journal or book indicate the number of the volume, and the figures printed in ordinary type refer to the page. In some cases a short comment upon the contents of the publication accompanies the reference; comments not followed by initials are by G. H. F. N., others are initialed by L. E. R. or W. F. C. Unless otherwise stated in the text or reference the quotations are from the original papers.

In a number of cases titles have been cited from short bibliographies given by other authors, the original papers being either inaccessible or not having been as yet consulted by us in the original. The bibliographies referred to are by Hunter and Hooker, 1907, Salmon and Stiles, 1901, and Stiles and Hassall's Index, 1902, which is still appearing (abbreviated to H. and H. bibl., S. and S. bibl. and S. and H. bibl. in our bibliography). Some references are taken from Neumann, Huber, and other sources, including the *Zoological Record* and the *Bibliographia Zoologica* (*Zool. Anzeiger*). L. E. Robinson and W. F. Cooper have checked a number of the references. We are indebted to C. Warburton for kindly aiding with the translation of some extracts from the writings of classical authors.

We shall be very grateful to readers who may draw our attention to errors or omissions in the bibliography.

G. H. F. N.

L. E. R. AND W. F. C.

CAMBRIDGE,
July, 1911.

BIBLIOGRAPHY OF THE IXODOIDEA

- Abn Mansur Muwaffak** (?), *vide* Kobert, *Histol. Studien*, III, pp. 143, 153. Cit. Huber bibl., 1910, p. 21.
- Absolon, Ph. C. K.** (1899), Ueber die Fauna der Höhlen des mährischen Devonkalkes. *Zool. Anz.*, XXII, 321-325. (Refers briefly to the occurrence of *Eschatocephalus gracilipes* Frauenfeld, on *Chiroptera* hibernating in caves. (L.E.R.))
- Aclogue, A.** (1905), Les Argas. *Le Cosmos*, N.S., LIII, 536 (inaccessible).
- (1907), Le mode de nocuité des Argas. *Le Cosmos*, N.S., LVI, 33-36.
- Agassiz, L.** (1846), *Nomenclatoris zoologici Index Universalis, continens nomina systematica classium, ordinum, familiarum et generum animalium omnium, tam viventium quam fossilium, secundum ordinem alphabeticum unicum disposita adjectis homonymiis plantarum, necnon variis adnotationibus et emendationibus*, pp. viii+393, 4°, Soloduri. (Only lists genera: *Argas*, *Ixodes*, etc.)
- Ajutolo, G. d'** (1898), Nuovi casi di *Argas reflexus* parassita dell' uomo. *Rend. Accad. Ist. Bologna*, II, 222-223.
- (1900), *Argas reflexus* parassita dell' uomo. *Mem. Accad. Bologna*, 8 pp., 4 Figs., 4°. (Cit. Huber, bibl. 1910, p. 21.)
- Aldrovandi, U.** (died 1605, publ. posth. 1638), *de Insectis*. Citations, translated by us, from extracts of the Latin original in Pagenstecher, 1861, p. 4: Lib. v. pp. 559 et seq., cap. v. the author gives the names of the tick in different countries: Hundlaus, Zecke, Holzbock (Germany); Hondtsluejis (Belgium); Rezna, Garapato (Spain). He would explain the Italian word *cecca* as derived from the gut ending blindly, thus reverting to the myth of Pliny. P. 554: "one often notices that dogs, on leaving home, are free from Ticks (*ricinus*), but on returning from the fields, where there is much thick, tall grass, they are infested by both kinds, great and small." P. 561, Pliny praises the blood, obtained from ticks, as a remedy for chronic ulcers. "If a fistula succeeds to an old disease...the blood of a tick which an ox has nurtured" will cure the condition.
- Allan, R. R.** (1881), Septicæmia from a Tick Wound. *Lancet*, II, 403. (Cit. Nuttall, 1899, p. 42.)
- Allen, W. E.** (20. XII. 1905), Internal Morphology of the American Cattle Tick. *Studies from the Zool. Lab., University of Nebraska*, No. 67, 4 Pl., pp. 245-280; also *Trans. American Micr. Soc.*, XXVI, 245 et seq., 4 Pls.
- Almy** (10. X. 1901), Nouveaux cas de piroplasmose canine. *Bulletin de la Soc. centr. de méd. vétér.*, pp. 375-380.
- see **Nocard**.

- Alt, K.** (1892a), Die Taubenzecke als Parasit des Menschen. *München. med. Wochenschr.*, xxxix. 531-533, 2 Figs. (Cit. Nuttall, 1899, p. 45, *A. reflexus*.)
- (1892b), Die Taubenzecke als Parasit des Menschen. *Thiermed. Rundschau*, Halle a. S., vi. 265-269. (1 Sept.; *A. reflexus*.)
- (1893), Die Taubenzecke als Parasit des Menschen. *Centralbl. f. Bacteriol.*, xiv. 468. (Rev. by Knüppel.)
- Amaral Leal, J., and Sant'Anna, J. F.** (1909), *Ornithodoros moubata* in Lourenço Marques. *Arch. Med. Lisboa*, II. 87-88.
- Anderson, J. F.** (1903), Spotted fever (Tick fever) of the Rocky Mountains. A new disease. *Treasury Dept., Public Health and Marine Hosp. Service of the U.S., Hygienic Laboratory Bulletin*, No. 14, 50 pp. (3 col. plates, 2 photos, charts and maps).
- Anon.** (?), Australian Ticks. *Amer. Micr. Journ.*, xxi. 123.
- Anonymous author** (1702), An extract of some letters sent to Sir C. H. relating to some microscopical (sic) observations. Communicated by Sir C. H. to the publisher. *Philos. Trans.*, London, xxiii. 1362 (1702-1703). (Found a small black tick attached to his arm after a walk in the woods. Describes the mouth-parts and refers to figs. which do not accompany the text. His description of the hypostome of the "wood-tick" might apply to that of *ricinus* ♂. In the "dog-tick" there were 8 teeth in a row on the "snout" (hypostome), which is aptly compared to the proboscis of a swordfish.)
- Aragão, H. de B.** (1908), Algumas novas especies de carrapatos brasileiros. *Trabalho do Instituto de Manguinhos*, Rio de Janeiro, reprint 19 pp. no figs. (*Haemaphysalis kochi*, *Amblyomma lutzi* (= *A. cooperi* Nutt. and Warb.), *Amblyomma braziliense*, *Amblyomma parvum*, n.spp.)
- (8. VI. 1908). Mais uma nova especie de carrapato brasileiro. *Brazil-Medico* (Rio de Janeiro), xxii. 251-252 (*Amblyomma mantiqueirense*, n.sp.).
- (22. XI. 1908), Mais um novo carrapato brasileiro. *Brazil-Medico* (Rio de Janeiro), xxii. 431-432 (*Amblyomma pseudoconcolor*, n.sp.).
- Aristotle** (384-322 B.C.), *Hist. anim.* ed. Frankf. 1587 (full quotations from the Greek original are given by Pagenstecher, 1861, p. 2). We glean the following: p. 142, 1: "Ticks (κρότωνες) come out of the grass." P. 151, 22: "The ass has no lice nor ticks; oxen have both...among dogs Cynorhaestes (κυνόρασται) are plentiful." Theodorus Gaza interprets the latter as meaning *ricinus*, "a disgusting parasitic animal"; Cratander's (ed. Basil., 1534) Latin version reads "the tick (*ricinus*) is natural to dogs and takes its name Cynorhaestes from the dog"; Gaza, on the other hand, renders κρότων = redivus [*redurius*]: "except the ass, which not only has no lice, but is even immune to the tick." Aristotle (*Rhetoric*, lib. II. cap. ii. ed. Didot, 1848, vol. I., p. 370, b) recounts a story of Æsop: "A fox, crossing a river, got into difficulty; she had many ticks adhering to her body. A hedgehog wandering that way pitied her and asked her if she wanted the ticks pulled off, but she did not; when the hedgehog asked her 'why,' 'because,' said she, 'they are already full of me and they are drawing very little of my blood, whereas if you tear these out, other famished ones will come along who will take the little blood that is left to me.'" The name of Croton is derived from the tree called κρότων whose yellowish, greasy seed resembles the tick. The saying "more healthy than a tick" appears, according to Zenobius, A.D. 200, to refer to the belief that the tick possessed no vent.

- Aristotle (384–322 B.C.)**, *The Works of Aristotle* translated into English under the Editorship of J. A. Smith and W. D. Ross. Vol. iv.: *Historia Animalium* by D'Arcy W. Thompson, Oxford: Clarendon Press, 1910. (P. 552 a, 15 occurs the passage: "The tick is generated from couch grass.")
- Ashburn, P. M. (1908)**, A comparative study of Tsutsugamushi Disease and Spotted or Tick fever of Montana. *Boston Med. Surg. Journ.*, CLVIII. 749–761.
- Ashburn, P. M. and Craig, C. F. (I. 1908)**, A comparative study of Tsutsugamushi disease and spotted or tick fever of Montana. *Philippine Journ. of Sci.*, B. Med. Sci., III. 1–29. (A useful summary of what is known about spotted fever.)
- Ashworth, J. H. (20. III. 1909)**, Some recent work on Ticks. *Veterinary News*, VI. 133–134. (Brief reference to hatching of *I. ricinus* eggs as cited in our text p. 300, otherwise nothing original.)
- Audouin, J. V. (1827)**, *Description de l'Égypte*, ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'armée française, publié par les ordres de sa majesté l'empereur Napoléon le Grand, éd. 2, xxii. Zoologie.
- (1832), Lettres pour servir de matériaux à l'histoire des Insectes. Première Lettre, contenant des Recherches sur quelques Araignées parasites des genres *Ptéropte*, *Caris*, *Argas*, et *Ixode*, adressée à M. Léon Dufour. *Ann. d. sci. nat.*, Paris, xxv. 401–425, Pls. IX, Figs. 8–10; XIV, Figs. 1–4. (Argasidae and Ixodidae.)
- (1836), "Arachnida" in Todd's *Cyclopaedia of Anatomy and Physiology*, I. 200. (Classification according to Dugès; p. 203 mouth-parts of *Argas* described, also spiracle of *I. erinacei*. Cit. Pagenstecher, 1861, p. 12.)
- Aurivillius, C. W. S. (1886a)**, En fästing sasom endoparasit (*Ixodes*). *Ent. Tidskr.*, Stockholm (2), VII. 105–111, Figs. 3.
- (1886b), Un Ixode endoparasite (Résumé of foregoing). *Ent. Tidskr.*, VII. 139–142.
- Austen, E. E. (1906)**, An insect enemy of the disseminator of human tick fever in Angola. *Journ. Trop. Med.*, Lond., IX. 113. (Describes *Phonergates bicoloripes*, sent by Wellman.)
- Baldasseroni, V. (1908)**, "*Ixodes ricinus*" L. infetto da embrioni di *Filaria*. *Bull. Soc. Entom. Ital.*, Anno XXXV. 171–174.
- Balfour, A. (1904)**, *First Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum*. Printed by the Department of Education, Sudan Government, Khartoum. 83 pp. Numerous figures. 6 coloured plates. 28 × 20 cm.
- Banks, C. S. (1904)**, The Australian Tick (*Boophilus australis* Fuller) in the Philippine Islands. [Publication] 14, Bureau of Gov't Lab's., Biological Lab. (Manila). *Bull. No. 2*, (Entomological Division), pp. 13–21, Figs. 1–23, reprint.
- Banks, N. (1895)**, The Acarina of Colorado. *Ann. New York Acad. Sci.*, VIII. 417–434. (*Dermacentor americanus* L. and *Rhipicephalus* sp. are only listed.)
- (1899), Reports upon the insects, spiders, mites, and myriapods collected on the Commander Islands Expedition. *The Fur Seals and fur-seal islands of the North Pacific Ocean*, Pt. 4, pp. 328–351. (Lists *Ixodes borealis*, supposes

Bibliography of the Ixodoidea BAN-BAT

- I. jimbriatus* Kramer and Neuman to be the male. Cit. Hunter and Hooker, 1907, p. 73.)
- Banks, N.** (1901 a), Acarina in "Some Spiders and other Arachnida from Southern Arizona." *Proc. U. S. Nat. Museum*, xxiii. 590. (*A. persicus* and *Ixodes* sp. not identified.)
- (1901 b), Some Arachnida from New Mexico. *Proc. Acad. Nat. Sci., Philadelphia*, LIII. 568-597. (*A. persicus* found at Deming.)
- (1902 b), Papers from the Hopkins-Stanford Galapagos Expedition, 1898-1899, vol. VII, Entomological Results (6), The Arachnida. *Proc. Wash. Acad. Sci.*, iv. 70, Pl. II, Fig. 9. (*Argas transversa*, n.sp., and mention of *Amblyomma pilosum* Nn. both at Albemarle Island.)
- (1904 a), Some Arachnida of California. *Proc. California Acad. Sci.* (3), III. 331-376, Pl. XLI, Fig. 57 (Zoology).
- (1904 b), A treatise on the Acarina or Mites. *Proc. U. S. National Mus.*, xxviii. 1-114, 201 text-figs. (Ticks : pp. 42-49, Figs. 71-85.)
- (1904 c), The Arachnida of Florida. *Proc. Acad. Nat. Sci., Phila.*, LVI. 120-147. (*Boophilus annulatus* Say, *Ixodes scapularis* Say, *Dermacentor americanus* Linn., *Amblyomma tuberculatum* Marx, only listed.)
- (1907), A catalogue of the Acarina, or Mites, of the United States. *Proc. U. S. Nat. Mus.*, xxxii. 595-625.
- (VIII. 1907), [Classification of ticks, summary of paper]. *Proc. Entomol. Soc. Washington*, VIII. 62. (Cit. Banks, 1908, p. 14.)
- (1908), A revision of the Ixodoidea, or Ticks of the United States. *U. S. Dep't of Agricult., Bureau of Entomology, Technical Series No. 15.* 60 pp., 10 Plates. Washington, D.C. (issued 6. vi. 1908).
- (1908 a), Tick-borne diseases and their origin. *Journ. Econ. Entomol.* i. 213-215.
- (I.-III. 1910), New American Mites (*Arachnoidea*, *Acarina*). *Proc. Entomolog. Soc., Washington*, XII. 2-12, Pl. I-III (*Ornithodoros marginatus*, n.sp. and *Ixodes aequalis*, n.sp.).
- (VI. 1910), Three new ticks from the United States. *Proc. Entomol. Soc. Washington*, x. 170-173, Figs. 12-17. (*Dermacentor modestus*, *Aponomma inornata*, *Ixodes texanus*.)
- Barber, C. A.** (1894-95), Notes on Ticks. *Leeward Islands Agricult. Journ.* 1894, No. 2, p. 36 ; No. 3, p. 57. Reprinted in *Journ. Trinidad Field-Naturalists' Club*, II., pp. 161, 183, 197, 228, 252. See also *Agric. Gazette, New South Wales*, VI. 717.
- (1895), The effects produced by ticks upon their hosts. From the *Leeward Islands Agricultural Journal*, 1894. Reprinted in *Journ. of the Trinidad Field-Naturalists' Club*, pp. 197-204.
- (27. VI. 1895 and 8. VIII. 1895), The Tick pest in the Tropics. *Nature*, LII. 197-200, 1 Fig.; also *Agric. Journ., Cape Town*, xviii. 419-421.
- Barnes, A. W.** (1896 a), Tick fever in Queensland. (Read before Centr. Queensland Farmers' and Selectors' Ass., Aug. 1.) *Vet. Journ. and Ann. Compar. Pathol.*, Lond., XLIII. 300-303. Discussion, pp. 303-305. (S. and H., bibl.)
- Batelli, A.** (1891 a), Note anatomo-fisiologiche sugli Ixodini. *Monitore zool. ital.*, Firenze, Anno II, No. 4, pp. 78-84 ; No. 5, pp. 98-104, 1 Fig.

- Batelli, A.** (1891 b), Anatomical and physiological notes on Ixodidae. (Abstract of Batelli, 1891 a.) *Journ. Roy. Micr. Soc.*, Lond. 2nd ser., xi. 731-732.
- (1892 a), Note anatomo-fisiologiche sugli Ixodini (comunicazione preventiva). *Bull. Soc. entom. ital.*, Firenze, xxiii. 218-235, 1 Fig.
- (1892 b), Notes on Ixodidae. (Abstract of Batelli, 1891 a and 1892 a.) *Journ. Roy. Micr. Soc.*, Lond. 2nd ser. xii. 602-603. (Cit. S. and H. bibl., 1902.)
- Bayle-Barelle, G.** (1824 a), *Degli insetti nocivi all' uomo, alle bestie, all' agricoltura, alle ortaglie, ec. ec.* Coi mezzi che impiegar si debbono per distruggerli o tenerli lontani, e rimediare a' mali che possano a ercagionato. Opera riprodotta da A. Ascona. x. pp. 1 Pl., 143 pp., 4 Pls. 12°, Milano. (S. and H. bibl.)
- Beardslee, H. C.** (1884), Cattle tick on human body. *Bull. No. 4, Div. Ent., U. S. Dept. Agric.*, Washington, pp. 84, 85. (S. and S. bibl.)
- Beille, L.** see Dubreuilh.
- Beinarovič, S. K.** (1909), Die Milben N.-W. Russlands als Vermittler der Infection des Hornviehs mit Haemoglobinurie. 1-te Mitt. Anatomie, Biologie und pathogene Natur von *Ixodes reduvius*. *Arch. veterin. nauk. St Petersburg*, xxxvii. 1-43. [Russian.]
- Belval, Th.** (1861), Note sur l'*Ixodes poortmani*. *Bull. de l'Acad. roy. de Belgique*, (2 sér.) xi. 97-101, 1 coloured plate.
- Beneden, P. J. van** (1873), Les parasites des Chauves-Souris de Belgique. *Mém. de l'Acad. Roy. de Belgique*, xi. 8. (*Ixodes lividus* van Beneden: only a nominal sp. found but once on *Vespertilio pipistrellus*, referred to in two lines, detailed description promised.)
- (1883), *Animal Parasites and Messmates*. 3rd ed., 83 Figs., 274 pp. London: Kegan Paul, Trench and Co. (brief mention of Ticks).
- see Gervais.
- Bennewitz** (1838 a), Der Holzbock, als Schmarotzerthier auf der Haut des Menschen beobachtet. *Journ. d. pract. Heilk.*, Berlin, lxxxvii. 126-128. (Cit. S. and H. bibl., 1902.)
- Berlese, A.** (1885), Acarorum systematis specimen. *Boll. della Soc. Ent. Italiana*, xvii. 121-144.
- (1888), Acari Austro-Americani. *Ibid.* xx. 193.
- (1888-1892), *Acari, Myriopoda et Scorpiones hucusque in Italia reperta*. Padua. [Re Ticks: see Fasciculi 47 and 49 (1888), 55 (1889), 58 (1891), 61 (1892).]
- (1889), Acari africani tres illustrati. *Atti d. Soc. veneto-trentina di sc. naturali*, x. 289-300, Pl. VII, Figs. 2-4. (Cit. Neumann, re *Hyal. utriculus* Berlese and *Orn. savignyi* Audouin.)
- (1897), Ricerche sugli organi e sulla funzione della digestione negli Acari. *Rivista di Patologia vegetale*, Padova, v. 129-195, Pl. VIII-IX, Figs. 36.
- Berlese, A., and Trouessart, E.** (1889), Diagnoses d'Acarieus nouveaux ou peu connus. *Bull. de la Bibliothèque scientif. de l'Ouest*, ii. 130. (Cit. Neumann re *Amblyomma strobili* Berlese and Trouessart.)
- Bernard, H. M.** (read 21. iv. 1892, publ. 1894), Some observations on the relation of the Acaridae to the Arachnida. *Linnean Soc. Journ.—Zoology*, xxiv. 279-291, Pl. XX.
- (19. iv. 1893), Notes on some of the digestive processes in Arachnids. *Journ. Roy. Microsc. Soc.* 1893, pp. 427-443, Pl. VI.

- Bertkau, Ph.** (1880), Verzeichniss der von Prof. Ed. van Beneden auf seiner im Auftrage der belgischen Regierung unternommenen wissenschaftlichen Reise nach Brasilien und La Plata i. J. 1872-1875, gesammelten Arachniden. *Mém. couron. et Mém. d. sav. étrangères publ. par l'Acad. Roy. d. sci., d. lettres et des beaux-arts de Belgique*, Bruxelles, XLIII. pp. 120, Pls. I, II. [Ixodidae mentioned pp. 109, 110, not figured.]
- (1881), Bruchstücke aus der Lebens-, namentlich Fortpflanzungsgeschichte unserer Zecke, *Ixodes ricinus*. *Verhandl. d. naturhist. Ver. d. preussischen Rheinlande und Westfalens*. Jahrg. 38, Bonn 1881, Sitzungsberichte, pp. 145-148.
- Besanez, W. and G.** (1848), *Guanin* ein wesentlicher Bestandtheil gewisser Secrete wirbelloser Thiere. *Gelehrte Anzeigen herausgeg. v. Mitgliedern d. K. Bayer.-Akad. d. Wissensch.* xxvii. (Cit. Batelli, 1891, p. 99, re urinary secr. in Arachnida.)
- Bianconi, G. A.** (1867), Sul *Rhynchoprion columbae* Herm. o *Argas reflexus* Latr. con una Tavola. *Mem. dell' Accad. d. sc. dell' Istituto di Bologna* (2), vii. 107-112, 1 Pl.
- Bielitz, A. W.** (1908), Untersuchungen über die Piroplasmose der Pferde im Jahre 1907 im Gouv. Rjazan. *Arch. veterin. nauk*. St Petersburg, xxxviii. 123-160, 235-263, mit 4 Taf. u. 1 Tab. [Russian.]
- see **Marzinowski**.
- Billings, F.** (1893), *Southern Cattle Fever (Texas Fever)*. 3rd ed. Lincoln, Nebraska, U.S.A., 1893 (rev. in *Baumgarten's Jahresh.*, 1893, p. 139. Cit. Nuttall, 1899.)
- Birch-Hirschfeld, F. V., and Johne, A.** (1889 a), *Die thierischen und pflanzlichen Parasiten des Menschen (und der Hausthiere)*. In F. V. Birch-Hirschfeld's *Lehrb. der pathol. Anat.* 4th ed., vol. 1.: Allgemeine pathologische Anatomie. Leipzig, pp. 276-397, 73 Figs. (S. and H. bibl.)
- Bird, Wm. N. D.** (1899), Texas fever tick (*Boophilus bovis*), *Tenn. Farmer*, Nashville, xix. 1-5, Figs. 1-6. (Inaccessible. S. and S. bibl.)
- Birula, A.** (1894), *Ixodes calcaratus*, n.sp. *Arb. Zool. Lab. St Petersburg*, 1894, p. 137; also in *Trudni St Petersburg. Obsch.* (Russian), xxiv. 137.
- (1894 and 1895), Ixodidae novi vel parum cogniti Musei Zoologici Academiae Caesareae Scientiarum Petropolitanae. i. *Bull. de l'Acad. Imp. des Sc. de St Pétersbourg*, sér. 5, ii. (4), April, pp. 353-364, Pls. I, II.
- Bishopp, F. C.** (30. III. 1911), The distribution of the Rocky Mountain Spotted-fever Tick. *U. S. Dept. of Agric., Bureau of Entomol.*, Circular No. 136, 4 pp., 1 Map. (*Dermacentor venustus* Banks.)
- Blanchard, R.** (?), "Parasites Animaux" in Bouchard's *Traité de Pathol. Générale*, vol. ii. Paris.
- (1890), *Traité de la Zoologie médicale*, ii. 883 pp., Figs. 388-883. (Refers to different Argasidae.)
- (23. x. 1891), Pénétration de l'*Ixodes ricinus* sous la peau de l'homme. *Compt. rend. Soc. Biol.*, Paris, s. 9, iii. 689-691.
- (1908), *L'Argas reflexus* et les maladies infectieuses. *Bull. Soc. Entomol., France*, 238-241.
- (v. 1909), *L'Insecte et l'Infection*, histoire naturelle et médicale des arthropodes pathogènes. Premier fascicule: *Acarions*, 160 pp., 197 illustrations in the text. Paris: Librairie Scientifique et Littéraire.

- Blumenbach** (1830), *Handbuch der Naturgeschichte*. (Includes ticks in the genus *Acarus*, being characterised by "Oculi duo ad latera capitis, tentacula duo articulata." Citation from Pagenstecher, 1861, p. 9.)
- Bocquillons** (?), *Storia med. fra gli Aracnidi*, p. 113. Cit. Bianconi, 1867, p. 107. (Casual reference to *Argas reflexus*.)
- Bolivar I.** (1909), El "*Argas reflexus*" en España. *Bol. Soc. Españ. Hist. Nat.* ix. 157-161.
- Bonnet, A.** (17. VIII. 1903), Sur le développement post-embryonnaire des *Ixodes*. *C. R. Acad. Sciences*, cxxxvii. 419, 420; also *Bull. Inst. Pasteur*, i. 828.
- (1906 a), Sur l'anatomie et l'histologie des *Ixodes*. *C. R. Acad. Paris*, cxlii. 296-298.
- (1906 b), On the Anatomy and Histology of the Ixodidae. *Ann. Mag. Nat. Hist.* xxvii. 509-511 (transl. of Bonnet, 1906 a).
- (1906 c), Sur les organes génitaux mâles et de la spermatogenèse chez les Ixodes. *Compte Rendu de l'Assoc. Française pour l'Avancement des Sciences*, 35 Session (Lyon), 2e Partie, pp. 544-549, 5 Text-Figs. (Paris, 1907.)
- (1907), Recherches sur l'anatomie comparée et le développement des Ixodidés. *Ann. Univ. Lyon, N. Sér.*, i. Fasc. 20, 1-185, Pls. I-VI.
- (1908), Aperçu sur l'anatomie et la classification des *Ixodes*. Faune française des Ixodidés. *Arch. de Parasitol.*, xii. 224-267, 44 Text-Figs. (General structure, biology and classification of ticks.)
- (X. 1908), *Eschatocephalus flavipes* (Koch), nouvel Ixodidé pour la faune française. *Arch. de Parasitol.*, xii. 325-327, 3 Figs. (doubtful sp.).
- Bordier, A.** (1882), L'argas persicus. *Journ. de Thérapeutique*, ix. 131-133. (Cit. Nuttall, 1899, p. 47.)
- Borrel and Marchoux** (1905), Argas et spirilles. *Compt. rend. Soc. biol.*, LVIII. 362-364. (*A. persicus*.)
- Boschulte** (1860), *Argas reflexus*, als Parasit an Menschen. *Virchow's Archiv*, xviii. 554-556. (Cit. Nuttall, 1899, p. 44.)
- (1879), Ueber den *Argas reflexus*. *Virchow's Archiv*, LXXV. 562. (Cit. Nuttall, 1899, p. 40.)
- Bosenberg, H.** (1905), Beiträge zur Kenntniss der Spermatogenese bei den Arachnoiden. *Zool. Jahrb. Abt. Anat.*, xxi. 515, 3 pls.
- Brandes, G.** (1892 a), Ueber die Argasidae. *S.B. Ver. Sachs. Thür.*, pp. 17 and 22.
- (1892 b), Ueber die Familie der Zecken. *Ber. ü. d. Sitzungen d. naturforsch. Gesellsch. zu Halle im Jahre 1892*, 8-11.
- (1894-5), Zur Anatomie von *Ixodes*. *Zeitschr. Naturwiss.*, LXVI. 405.
- (1897), *Argas reflexus* als gelegentlicher Parasit des Menschen. *Centralbl. f. Bakteriol. u. Parasitenk.*, xxii. 747-752. (Cit. Nuttall, 1899, p. 45.)
- Braun, M.** (1883), *Die thierischen Parasiten des Menschen nebst einer Anleitung zur praktischen Beschäftigung mit der Helminthologie für Studierende und Aerzte*, pp. i-viii+1-233, Figs. 72. (See Braun, 1895.)
- (1895), *Die thierischen Parasiten des Menschen: ein Handbuch für Studierende und Aerzte*, Würzburg, ed. 2, pp. 283, Text-Figs. 147. (*Ixodidae*, see pp. 257-259, Figs. 127-130, none original.)
- (XI. 1906), *The Animal Parasites of Man*. London: John Bale, Sons and Danielsson, Ltd., 3rd edition, 453 pp., 294 illustrations in text. 26×17 cm. (Ticks, pp. 360-374, Figs. 236-239, none original and all poor. Numerous mistakes.)

- Braun, M., and Lühse, M.** (1910), *A Handbook of Practical Parasitology*, translated by Linda Forster. 208 pp., 100 Text-Figs. London: John Bale, Sons and Danielsson, Ltd. (Ticks very inadequately described on pp. 177-180. Fig. 88 of *I. ricinus* ♀ after Pagenstecher 1861 (!); Figs. 89, 90 of ♂ venter and ♀ capitulum (after drawings by A. Dampf) are very good.)
- Brown, A. A.** (1902), "Fowl Tick (*Argas miniatus*).¹" *Journ. Dep. Agric. Victoria*, i. 86-90 and 209-212. (Inaccessible; cit. Lounsbury, 1903, p. 6.)
- Bruce, D.** (1905). The advance in our knowledge of the causation and methods of prevention of stock diseases in South Africa during the last ten years. *Science*, n.s., xxii. pp. 289-299, 327-333. (H. and H. bibl.)
- Brucker, E. A.** (1901 a), La bouche des *Ixodes* (Acar.), *Bull. Soc. entom. de France*, Paris (6), pp. 142, 143.
- Brumpt, E.** (1901). Notes et observations sur les maladies parasitaires. *Arch. de Parasitol.*, iv. 561-580. (P. 578 re effects of bites of *O. moubata*.)
- (1908), Existence de la "Fièvre des tiques" en Abyssinie. Quelques mots sur la biologie de l'*Ornithodoros moubata*, acarien qui détermine cette spirochétose. *Bull. Soc. path. exot., Paris*, i. 432-437. Discussion: M. Schneider.
- (1908 a), Transmission du *Spirochaeta duttoni* par l'*Ornithodoros savignyi* et du *Sp. gallinarum* par l'*Ornithodoros moubata*; non-transmission des spirochètes de la faune américaine et algérienne par ce même parasite. *Bull. soc. path. exot. Paris*, ii. 285-288.
- (1910), *Précis de Parasitologie*, Paris: Masson & Cie, xxvi+915 pp., 4 Pl., 683 Text-Figs. of which 240 are original. (Ticks: see pp. 510-540, Figs. 343-386, of which 22 are original. Of special interest are those relating to *A. persicus*, *A. reflexus* (larva), *O. moubata* and *O. brumpti*.)
- Brumpt, E., and Foley** (1908), Existence d'une spirochétose des poules à *Spirochaeta gallinarum*, R. Bl., dans le Sud-Oranais. Transmission de cette maladie par *Argas persicus*. *C. R. Soc. Biol. Paris*, LXV. 132-134.
- Burmeister, H.** (1835-43), *Zool. Handatlas*. (Refers to mouthparts of dog tick. Cit. Pagenstecher, 1861, p. 11.)
- (1837), *Handbuch der Naturgeschichte*, 858 pp., 12°, Berlin. (S. and S. bibl.)
- (1856), *Zoonomische Briefe*, ii. 428. (Mentions salivary glands of *Ixodes* as being large, notes 6-legged larvae; cit. Pagenstecher, 1861, p. 16.)
- Busk, G.** (27. IV. 1842), Observations on the young of a species of *Ixodes* from Brazil. *Trans. Microscop. Soc.*, i. 88-91. Plates 9 and 10.
- Butler, T.** (1902), The breeds of beef cattle and beef production in North Carolina. *North Carolina State Bd. Agric.*, Bull. 24, No. 7. (Pp. 48-51 deal with: "Cattle tick an obstacle to the development of the cattle industry." H. and H. bibl.)
- (1903), Report of State Veterinarian in *Rept. Comm. Agric. North Carolina for 1902*, pp. 40-47. (Regarding the cattle quarantine, the extermination of the cattle tick, losses from tick fever, and the tick an obstacle to the improvement of the quality of the cattle of the State. H. and H. bibl.)
- (1903 a), The cattle tick and its relation to the cattle industry of North Carolina. *North Carolina State Bd. Agr.*, Bull. 24, No. 5, pp. 28, Figs. 2. (H. and H. bibl.)
- (1903 b), The cattle tick and the quarantine restrictions. *North Carolina State Bd. Agric.*, Bull. 24, No. 10, pp. 30-37. (H. and H. bibl.)

Bibliography of the Ixodoidea BUT-CAR

- Butler, T. (1906)**, Progress made in exterminating the fever tick (*Boophilus annulatus*) in North Carolina. *North Carolina Dept. of Agric. Circular* (unnumbered) issued Jan. 1, 1906, pp. 4. Reprinted in part in "Farm and Ranch," vol. xxv. p. 7, April 14. (Deals with the most successful work that has been done in the practical eradication of the cattle tick. H. and H. bibl.)
- Buy, P. (VII. 1906)**, *Histoire naturelle et médicale des Ixodes*. Thèse. Lyon, 73 pp., 8°, Fig. (Huber, bibl. 1910, p. 18.)
- Calandruccio (IV. 1899)**, Gli ixodidi ectoparassiti dell' uomo. *Bollettino dell' Accademia Gioenia di Scienze Naturali in Catania*. Fasc. LIX, pp. 4, reprint.
- Calinescu, J.** see **Mezinescu**.
- Calman, W. T. (15. IV. 1905)**, *Ornithodoros savignyi* var. *caecum* [should be *caecus*]. *Journ. Tropical Medicine*, VIII. 124. (*O. moubata*.)
- Canestrini, G. (1884)**, Acari nuovi o poco noti. *Atti del R. Istituto Veneto di Scienze etc.* (6), II. 705, Pl. VI, Fig. 4 (mouthparts). (*Haemaphysalis papuana* Thorell.)
- (1890), *Prospetto dell' Acarofauna italiana; Famiglie: Tetranychini, Ixodini, Argasini*, IV. 427-540, pls. XXXVII.-XLIII. Padova.
- (VII. 1890 b), Intorno alla metamorfosi degli Ixodini (nota). *Bull. Soc. Veneto-Trent. di Sc. nat.*, Padova, IV. 243, 244. (Short note on metamorphosis of *Ixodes* nymph.)
- (1891), Abbozzo del sistema acarologico. *Atti R. Istit. Venet. di Sc.* (7), II. 699-725. (Cit. J. Martin, 1894, p. 277.)
- (1892 a), *Prospetto dell' Acarofauna italiana; Intorno alla metamorfosi degli Ixodini* (Nota). Abbozzo del sistema acarologico; Famiglia dei Phytoptini (Phytoptidae), v. 543-722, Tav. XLIV.-LIX. Padova.
- (1897), Nuovi Acaroidei della N. Guinea. *Természetráji Füzetek*, Budapest, XX. 468, 469. (*Opisthodon*.)
- Canestrini, G., and Canestrini, R. (1882 a)**, *Acari italiani*, 3 Pls., 8°. (S. and H. bibl.)
- Canestrini, G., and Fanzago, F. (1876 a)**, Nuovi acari italiani. *Atti Soc. Veneto-Trent. di Sc. nat.*, Padova, v. 99-111; 130-142. (S. and H. bibl.)
- (1877), Intorno agli acari Italiani. *Atti del reale Istituto Veneto di scienze, lettere ed arti*, ser. 5, IV. (1877-78) (1 [for Nov., 1877]), 69-208, Tav. II.-VI. (Reprint paged 1-140, citations made from the latter.)
- Cantor, Th. (1847)**, Catalogue of Reptiles inhabiting the Malay Peninsula and Islands. *Journ. Asiatic Soc. of Bengal*, XVI. 608. (*Amblyomma geoemydae* (Cantor); cit. Neumann, 1906, p. 214.)
- de Carlini (1889)**, Artropodi di Valtellina, estr. p. 11. *Bull. Soc. entomol. italiana*. Anno XXI. (Cit. Canestrini, 1890, p. 523, re *Dermacentor reticulatus*.)
- Carpenter (1858)**, *Zoology*, II. 227. (Ticks receive casual mention. Cit. Pagenstecher, 1861, p. 16.)
- Carpot, C. (1886 a)**, Considérations sur les parasites pénétrants de la peau dans les pays chauds et spécialement au Sénégal. Thèse. Bordeaux, 64 pp., 4°. (S. and H. bibl.)
- Carré, Ch. (1909)**, Note sur des larves d'*Argas* qui attaquent les poules en Perse. *Rec. Méd. vétér.* Paris, LXXXVI. 172-173.

- Carter, R. M.** (1907), The presence of *Spirochaeta duttoni* in the ova of *Ornithodoros moubata*. *Ann. Trop. Med.* Liverpool, 1. 155-160, Pl. X.
- Castellani, A., and Chalmers, A. J.** (1910), *Manual of Tropical Medicine*, 1242 pp., 14 Plates, 373 Text-Figs. London: Baillière, Tindall and Cox. (Ixodoidea treated of on pp. 460-487; Figs. 184-201, of which 8 are original; the latter are very well drawn and give a good general impression but are not accurate on morphological points.)
- Cato, M. Porcius** (234-149 B.C.), ed. Gesneri 1781, cap. 96 (Latin citation in Pagenstecher, 1861, p. 2). In speaking of the treatment of sheep the author writes: "If you do this there will be no sores and the wool will be more plentiful and in better condition and the ticks (ricini) will not be troublesome."
- Celli, A., and Santori, F. S.** (1897 b), Die Rindermalaria in der Campagna von Rom. (Synonyme: Texasfieber, Hämoglobinurie in Rumänien und Finland, Hämaturie in Sardinien und im Agro Romano.) (Transl. of Celli and Santori, 1897 a.) *Centralbl. f. Bakteriöl., Parasitenk.* etc., Jena, 1. Abt., XXI. 561-572, Pl. IV, Figs. 1-56.
- Chabrier, F.** (1807), Bemerkung über die Fortpflanzungsweise der Gattung *Ixodes* Fabr. *Magazin für Insektenkunde* ("Illiger's Magazin"). Braunschweig, VI. 366-370.
- Chalmers, A. J.** see **Castellani**.
- Charleston, G.** (1668), *Onomasticon zoicon plerorumque animalium differentias et nomina propria pluribus linguis exponens. Cui accedunt mantissa anatomica; et quaedam de variis fossilium generibus*. 309 pp., with Figs. London. (S. and S. bibl.)
- (1677), *Exercitationes de differentiis et nominibus animalium*. (Cit. Gené, 1844; ref. given in Fischer's transl. of Gené, 1849.)
- Chatelin** (1882), [Effects of bite of *A. reflexus* on man]. *Soc. Entomol. de France*, Séance du 24. v. 1882. (Cited by Laboulbène and Méguin, 1882, p. 340, and Railliet, 1895, p. 717.)
- Chauvelot, E.** (1904), Les babesioses. Doctor's Dissertation. Paris, F. R. de Rudeval, 94 pp. reprint.
- Chillada Melia, J.** (1884), La ponzoña de la garrapata. *Gac. d. l. hosp., Valencia*, III. 172-175.
- Chilton, C.** (1904), A species of *Ixodes* parasitic on the Grey Duck. *Trans. Proc. New Zealand Inst.*, XXXVI. 201-202.
- Chowning, W. M.** see **Wilson**.
- Christophers, S. R.** (1906), The Anatomy and Histology of Ticks. *Scientific Memoirs by Officers of the Med. and Sanit. Dep'ts of the Gov't of India*, Calcutta, N.S., No. 23, Pls. I-VI, 55 pp.
- (1907 a), The sexual cycle of *Leucocytozoon canis* in the Tick. *Sci. Mem. by Offc. of Med. and Sanit. Dep'ts, Gov't of India* (N.S.), No. 28, 12 pp., 1 Pl. (see pp. 3-5 re *Rhip. sanguineus*).
- (1907 b), *Piroplasma canis* and its life-cycle in the tick. *Scientific Mem. Officers Med. and Sanit. Dep'ts, Gov't India*, Calcutta (N.S.), No. 29, 83 pp., 4 Figs., 3 Pls. (*Rhipicephalus sanguineus* conveys the disease; other ticks mentioned.)
- Christy, C.** (1903), "Tick Fever" in Man. (Including a note by R. I. Pocock.) *Brit. Med. Journ.*, II. 653; also appeared in *Thompson and Johnston Laboratories Report*, v. 187-189, Pl. XV.

- Churchill, A.** (1892 a), Ticks on dogs. (Abstract of letter.) *Vet. Journ. and Ann. Compar. Pathol.*, London, xxxiv. 393.
- Churchill, S.** (1880 a), Note on *Argas persicus*. *Proc. Entom. Soc. Lond.*, pp. xx-xxiii.
- Claude, and Soulié** (1901 a), Contribution à l'étude de la piroplasmose bovine en Algérie. *Bull. Soc. centr. de méd. vét.*, Paris, LV. n.s. xix. 478-484. (Discussion, pp. 484, 485.)
- Claus, C.** (1876 and 1880), *Grundzüge der Zoologie*, 3rd ed. (1876), p. 574; also 4th ed. (1880), I. 652. (Contains no information worth noting and a mis-statement regarding mode of copulation in *Ixodes*.)
- (1886 a), On the heart of the Gamasidae and its significance in the phylogenetic consideration of the Acarida and Arachnoidea, and the classification of the Arthropoda. *Ann. and Mag. Nat. Hist.*, London, 5 s., xvii. 168-172, 1 Fig.
- (1887), *Lehrbuch der Zoologie*, 4te Aufl. Marburg and Leipzig: N. G. Elwert. [Pp. 470-474 give a brief description of chief features of *Ixodes* and reproduce three figures from Pagenstecher (1860, 1861): *Ixodes ricinus*, general internal anatomy (Fig. 443); *Argas*, ♀ and ♂ sexual organs (Fig. 444); *Ixodes*, rostrum (Fig. 450).]
- Clayton, W. D.** (1897 a), Ticks and Texas fever. (Reviewed.) *American Vet. Rev.*, New York, xx. 727. (S. and H. bibl.)
- Cleland, J. B.** (xi. 1909), A note on eosinophile cells in the exudate from tick bites on a horse. *Proc. Roy. Soc. Med.*, London, iii. 42, 1 Fig. (*Amblyomma aegyptium* [the author means *Hyalomma aegyptium*; they were identified by Nuttall] imported recently into W. Australia on camels from India, ticks spreading, attack horses and cattle; in horses attack tender parts and produce "exudation of a slimy, bloody discharge." The author figures the leucocytes in the wound discharges.)
- Cobb, J. O.** (1902), The so-called "spotted fever" of the Rocky Mountains. A new disease in Bitter Root Valley, Mont. *Pub. Health Rep.*, Wash., xvii. 1868-1870 [reviewed in *Lancet*, London, 1902, ii. 840; also *Med. Rec.*, N.Y., lxvii. 540, 541; also *American Med.*, Philadelphia, iv. 365, as "Strange Disease induced by Tick Bite" = 20 lines]. (It is only a report on the work of Wilson and Chowning, q.v.)
- Cobbold, T. S.** (1879), *Parasites; a treatise on the Entozoa of man and animals, including some account of the Ectozoa*. Pp. xi + 508, figs. 85, London.
- (1882), *Human parasites. A manual of reference to all the known species of Entozoa and Ectozoa which are found infesting man*. 88 pp. London: Longmans, Green and Co. (Brief mention of ticks on pp. 77, 78.)
- Coinde, J. P.** (1860 a), Note sur les épizoots parasites de l'homme et des animaux domestiques. *Monit. d. sc. méd. et pharm.*, Paris, 2 s., ii. 995-997. (S. and H. bibl.)
- Collins, W.** see **Hunt, S.**
- Columella, Jun. Moderat.** (about 60 B.C.), ed. Gesneri, 1781, H. lib. vi., cap. 2 (Latin citations in Pagenstecher, 1861, p. 3), writes of cattle which have been purchased: "to pass the hand under the belly...that ticks, which principally attack cows, may be removed." In lib. vii., cap. 13, p. 111, referring to liquid tar: "by this same medicament the ticks which are touched fall down, for they must not be torn away, lest, as I have said before, they cause ulcers."
- Comte, C.** see **Nicolle**.

- Conil, P. A.** (1877 a), Description d'une nouvelle espèce d'ixode, *Ixodes testudinis*. *Actas Acad. Nacional de Ciencias Exactas*, Buenos Aires, III. 25-37, Pls. I-III. (S. and S. bibl.)
- (1878 b), Description d'une nouvelle espèce d'ixode, *Ixodes auricularius*, in. *Ibid.* III. 99-110, Pl. IX, Figs. 1-8.
- (1878 c), *Description d'une nouvelle espèce d'Ixode et de Gamase*. 3 Pls., 4°. Buenos Aires. (S. and H. bibl.)
- Connaway, J. W.** (1897), Texas fever, or acclimation fever. *Bull. No. 37, Mo. Agric. Exp. Sta.*, pp. 81-139, Figs. 11. (S. and S. bibl.)
- see **Francis**.
- Connaway, J. W., and Francis, M.** (1899), Texas fever. *Mo. Agr. Exp. Sta.*, *Bull.* 48, pp. 66, Figs. 11. (H. and H. bibl.)
- Cook, A. J.** (1887-8), Ticks. *21st Ann. Rep. State Board of Agric. Michigan* (Lansing), pp. 403-409.
- (1889), Ticks on Western ponies. *The Rural New Yorker*, XLVIII. 229, 230, Figs. 81-83. (S. and S. bibl. Inaccessible.)
- Cook, A. R.** (1904), Relapsing fever in Uganda. *Journ. Trop. Med.*, 15 Jan., p. 24. (Epidemics of the disease in Budu and Mengo (Uganda), in 1903; found spirochaetes in the blood of patients: he observed the disease in 1899, at Mengo.)
- Cooley R. A.** (1909), Preliminary report on the wood tick. *Dermacentor* sp. [In sixth annual report of the State entomologist of Montana.] *Agric. Expt. Sta. Montana*, *Bull.*, No. 75, 95-108, Pl. I.
- Cooper, D.** (1842 a), (Note to Busk, George, 1842 b). *Microsc. Journ.*, London, II. 65-66. (S. and H. bibl.)
- Cooper, W. F.** (ix. 1910), "Five-day-spraying." The Brown Tick and East Coast Fever. *Journ. of Agricult. Sci.*, Cambridge, III. 285-296.
- see **Nuttall**.
- Cooper, W. F., and Robinson, L. E.** (v. 1907), Note on a new South African Tick, *Rhipicephalus phthirioides*, sp.n. *Linnean Soc. Journ.—Zoology*, xxx. 35-38, 4 Figs., Pl. V (also private plate of 6 Figs.). Reprint. (= *Margaropus winthemi* Karsch.)
- (15. II. 1908), On six new species of Ixodidae, including a second species of the new genus *Rhipiceator* N. and W. *Proc. Cambr. Philos. Soc.*, xiv. 457-470, 24 Figs.
- Cotton, E. C.** (xii. 1908), Tick eradication. The life-history and habits of the North American Fever Tick, with special reference to eradication. *Bull. Agric. Exper. Sta. Univ. of Tennessee*, No. 81, pp. 53-71, 7 Text-Figs., reprint.
- Cotton, W. E.** see **Schroeder**.
- Cox, C. J.** (1864), [*Ixodes ricinus* on dogs and ferrets]. *Proc. Entomol. Soc.*, London, II. 82-85.
- (1865 a), [Note on *Ixodes ricinus* infesting the skin of dogs]. *Trans. Entomol. Soc.*, London, 3 s., II.; *Journ. Proc.*, pp. 82-83 (same as Cox, 1864).
- (1865 b), [Dog-kennel infested with "*Ixodes plumbeus*"]. *The Zoologist*, London, xxiii. 9503-9504 (same as Cox, 1864).
- Craig, C. F.** (1898 b), The transmission of disease by certain insects: ticks, bedbugs, ants, etc. *New York Med. Journ.*, LXVIII. 593-599, Figs. 1-4.
- see **Ashburn**.

Bibliography of the Ixodoidea CRA-DAL

- Craybill, H. W.** (1909), Methods of exterminating the Texas-Fever Tick. *U. S. Dep't Agric. Farmers' Bull.*, No. 378, 1-30, 15 Figs.
- Curtice, C.** (27. XII. 1890), The Classification of American Ticks. *Washington Biol. Soc.* (Cit. Neumann.)
- (1891 a and b), The biology of the cattle tick. *Journ. Compar. Med. and Veter. Arch.*, XII. 313-319; also *The Veterinarian*, London, LXIV. 680-686.
- (1892 a), About cattle ticks. *Journ. Comp. Med. and Vet. Arch.*, XIII. 1-7. (S. and S. bibl.)
- (1892 b), Parasites, being a list of those infesting the domesticated animals and man in the United States. *Journ. Comp. Med. and Vet. Arch.*, XIII. 223-236. (S. and S. bibl.)
- (1892 c), Cattle tick (*Boophilus bovis* Riley sp.). Biology. *Bull. No. 24, Texas Agric. Exp. Sta.*, pp. 237-252, Pls. I, II. [The two plates and the essential parts relating to the biology of this tick are reprinted by Osborn (1896, pp. 258-259; Pl. IV-V).]
- (XII. 1892), The Cattle Tick (*Boophilus bovis* Riley sp.). *Agricult. Journ. New South Wales*, VII. 454 (reprinted from *Bull. No. 24 Texas Agricult. Station*: the same as Curtice 1892 c).
- (1896). On the extermination of the cattle tick and the disease spread by it. *Journ. Comp. Med. and Vet. Arch.*, XVII. 649-655. (P. 655, "I look most eagerly for the cleansing of even a portion of the infected territory under the direct intention of man, for it opens the way to pushing the ticks back to the Spanish isles and Mexico, and liberating cattle from disease and pests and the farmer untold money losses. Let your war cry be: Death to the ticks!")
- (1897 a), The cattle tick plague, and what may be done to prevent it. *Southern Planter*, 58th year, pp. 24-27. (S. and S. bibl.)
- (1897 b), Texas fever. *Southern Planter*, pp. 116-117. (S. and S. bibl.)
- (1899), Cattle quarantine, ticks and distemper. *North Carolina State Bd. Agric.*, Bull. (unnumbered). (H. and H. bibl.)
- (1899), Cattle quarantine line. *North Carolina Agric. Exp. Sta.*, spec. Bull. 52, pp. 1-28. (H. and H. bibl.)
- (1905), The cattle-tick plague. *The Southern Planter*, LXVI. 376-378. (A report of progress in extermination and a continuation of the two articles published in the above Journal, October, 1896, and January, 1897.) (H. and H. bibl.)
- Cuvier, G.** (1833), *Arachnidæ*, with additions by Griffiths and Pigeon. (Cited by George, 1876, p. 224, as referring to *Argas persicus* and *A. pipistrellæ* (last figured). See Dugès and Edwards (no date).)
- Dahl, F.** (1885), Das Gehör- und Geruchsorgan der Spinnen. *Arch. f. mikr. Anat.*, xxiv., Pl. 1, Fig. 8. (Re organ in spiders similar to Haller's organ in *Ixodes*; includes matter treated of in an earlier paper: (1883) *Zool. Anzeiger*, p. 267.)
- Dalrymple, W. H.** (1905), Texas fever, being a general summary of our knowledge of the subject to date. *Bull. Agric. Exper. Sta., Louisiana State University and A. and M. College*, Ser. 2, No. 84, 1 Map, 1 Pl., 31 pp.
- (I. 1906), The Tick Theory [from *American Veterinary Review*, VII., 1905], reviewed in *Journ. of Trop. Veterinary Science*, Calcutta, I. 115-117.

- Dalrymple, W. H., Morgan, H. A., and Dodson, W. R. (1898).** Cattle tick and Texas fever. Results of Experiments at State Experiment Station, Baton Rouge, La. *Bull. No. 51, Louisiana Exp. Sta.*, Ser. 2, pp. 230-282, 2 Figs., Pls. I-VI.
- (1899), Immunization against Texas fever by blood inoculation. Results of Experiments at State Experiment Station, Baton Rouge, La. *Bull. Agric. Exper. Sta., Louisiana State University and A. and M. College*, Ser. 2, No. 57, 2 Figs., 2 Pls., pp. 146-185.
- Daniels, C. W., and Wilkinson, E. (1909),** *Tropical Medicine and Hygiene*. Part I. Diseases due to Protozoa, 264 pp. London: John Bale, Sons and Danielsson, Ltd. [Ticks: see p. 194, Fig. 43 *Ornithodoros savignyi* ♀, dorsum, venter, detail of side showing spiracle, pp. 229-230, Figs. 54-56, ventral aspects of capitulum of *Ixodes* (more like that of *Amblyomma*!) *Rhipicephalus* and *Ornithodoros*. The text somewhat inaccurate.]
- Dekker (1858 a),** Die Hunde-Zecke (*Acarus reduvius*). *Verhandl. v. versch. Veeartsnijk* (1856-1857). (S. and H. bibl.)
- (1859 a), Die Hunde-Zecke (*Acarus reduvius*). *Repert. d. Thierh.*, Stuttg., xx. 237. (Abstract of preceding.) (S. and H. bibl.)
- Delprato**, see **Rivolta**.
- Denny, H. (1843),** Description of six supposed new species of Parasites. *Ann. a. Magaz. of Nat. History*, xii. 312-314, Pl. XVII, Fig. 4. (*Aponomma hydrosauri* Denny.)
- Desnos, E., and Laboulbène, A. (1892 a).** Un cas de tique dans l'espèce humaine; observation d'un fait d'*Ixodes reduvius* ayant pénétré sous la peau sans causer d'accidents. *Bull. et mém. Soc. méd. d. hôp. de Paris*, 3 s., ix. 681-684. (Discussion, p. 684.)
- Desprès (1867),** *Bulletin de la Soc. de Chir.*, viii. 461. (Cited by Joly, 1898. *Ixodes ricinus*: pathogenic effects in man.)
- Dinwiddie, R. R. (1892),** Parasitism of domesticated animals. *Bull. No. 20, Ark. Agric. Exp. Sta.*, pp. 31. (S. and S. bibl.)
- (1896), Texas cattle fever in various localities. *Ark. Agric. Exp. Sta.*, report, 1896, pp. 36-40. (A reprint from bulletin 40 of the station. Cit. H. and H. bibl.)
- (1898), Methods of combating communicable diseases of farm animals. *Bull. No. 51, Ark. Agric. Exp. Sta.*, pp. 35-46. (S. and S. bibl.)
- Dixon, R. W. (23. VI. 1898),** Heartwater experiments. *Agric. Journ., Cape of Good Hope*, xii. 754-760. (Experiments at infection through ticks sp. ? results doubtful.)
- Dixon, R. W., and Spreull, J. (1898 a),** Tick experiments. *Agric. Journ.*, Cape Town, xiii. 691-695.
- (1898 b), Redwater experiments, *Agric. Journ.*, Cape Town, xiii. 696-698.
- (1899 a), Tick experiments. (Same as Dixon and Spreull, 1898 a, and 1898 b.) *Vet. Journ. and Ann. Compar. Pathol.*, London, xlviii. 11-16.
- Doane, R. W. (1910),** *Insects and Disease*. Popular account of the way in which insects may spread or cause some of our common diseases. London: Constable & Co. Ltd., 21 x 14 cm., 227 pp., Frontispiece and 112 Figs. (Pp. 26-34, brief description of ticks and their relation to disease, Figs. 14-17 photographs of *I. ricinus* ♀, *B. annulatus* larva and ♀, *Amblyomma variegatum* ♀; pp. 213-215 bibliography of ticks and disease.)

Bibliography of the Ixodoidea DOD-DOW

- Dodd, S. (VIII. 1908)**, Tick Fever, or Redwater. *Queensland Dept. of Agricult. and Stock. Vet. Div. Bull.* No. 2, 15 pp., 1 Fig. (syringe for inoculation). (P. 4 outlines life-history of *Boophilus australis*.)
- (1910), *Queensland. Report of the Principal Veterinary Surgeon and Bacteriologist for the Financial Year 1908-1909*, Brisbane, Australia. (Pp. 16-20 Tick Fever, or Spirochaetosis of Poultry in Queensland, associated with presence of *Argas persicus*. Curative treatment with soamin.)
- Dodson, W. R.** see **Dalrymple**.
- Doflein, F. (1909)**, *Lehrb. der Protozoenkunde*. 2nd ed. Jena; Gustav Fischer, 914 pp., 825 Text-Figs. (P. 682, development of *Karyolius lacertarum* occurs, according to Schaudinn, in *I. ricinus*; p. 331, Figs. 284 a and b, *Argas persicus* in dorsal and ventral aspects, p. 332, Figs. 286 a and b, *Orn. moubata*; p. 695, brief mention of ticks in relation to piroplasmosis.)
- Dolly, C. (1894)**, Synonymatic table of the animal parasites of man and of the animals commonly associated with him. *An illustrated Dictionary of Medicine, Biology, and Allied Sciences*, etc., by George M. Gould. Philadelphia, pp. 978-1021, Figs. (S. and S. bibl.)
- Dönitz, W. (1905)**, Die Zecken des Rindes als Krankheitsüberträger. *Sitzungsber. der Gesellsch. naturforschender Freunde*, Berlin, Jahrg. 1905, No. 4, pp. 105-134, repr. 1 Plate.
- (1906), Ueber Afrikanische Zecken. *Sitzungsber. d. Gesellsch. naturforschender Freunde*, Berlin, Jahrg. 1906, No. 5, pp. 143-148, 8 Figs., reprint.
- (1907), *Die wirtschaftlich wichtigen Zecken mit besonderer Berücksichtigung Afrikas*. 127 pp., 38 Figs. and 6 Plates. Leipzig: J. A. Barth.
- (1907 a), Die Texasfieberzecke, *Boophilus annulatus*, und das Ixodinengus *Margaropus*. *Sitzungsber. d. Gesellsch. naturforschender Freunde*, Berlin, Jahrg. 1907, No. 6, 8 pp., reprint.
- (IX. 1907), Insekten als Verbreiter von Krankheiten: Die Zecken. *Ber. ü. d. XIV. Internat. Kongr. f. Hygiene u. Demogr.*, Berlin, 23-29 Sept., 1907, II. 179-188.
- (1909), Ueber das Zeckengenus *Amblyomma*. *Sitzungsber. der Gesellsch. naturforsch. Freunde*, Berlin, Jahrg. 1909, No. 8, 440-482, Figs. 1-15. (Important.)
- (1910), "Die Zecken Südafrikas." In *Schultze's Zool. u. anthropol. Ergebnisse einer Forschungsreise im westl. u. zentr. Südafrika ausgeführt in den Jahren 1903-1905. Denkschriften der Med.-Naturw. Gesellsch. zu Jena*, XVI. Jena: Gustav Fischer. Reprint, pp. 397-494, Pls. XV, (coloured) XVI a, XVI b, and XVII. 34 x 26 cm. (Important: classification considered, S. African species listed and described, biology, morphology, relation to disease discussed. On p. 475 describes *Rhip. evertsi* var. *mimetica* n. var., p. 481 *Rhip. folliis* n.sp., p. 122 *Haem. obtusa*, n.sp. Most excellent illustrations.)
- (1910 a), Zwei neue afrikanische Rhipicephalusarten. *Sitzungsber. d. Gesellsch. naturforsch. Freunde*, Berlin, Jahrg. 1910, No. 6, pp. 275-280, Figs. 1-4. Reprint. (*Rhipicephalus dux*, *R. glyphis*, n. spp.)
- Dougherty, M. S.** see **Newell**.
- Douglass, A. (1898 a)**, Paraffine for ticks. (Abstract.) *Agric. Journ.*, Cape Town, XII. 498-499.
- Dowson, J. (I. VI. 1895)**, Poisonous tick. *Brit. Med. Journ.*, I. 1201. (Followed by a short note by R. I. Pocock.)

Bibliography of the Ixodoidea DUB-DUP

- Dubreuilh, W. (1900), "Dermatozoaires" in *Pratique dermatologique*. Vol. 1., 8°, Paris: Masson.
- Dubreuilh, W., and Beille, L. (1896), *Les parasites de la peau humaine*. 185 pp., 22 Text-Figs. Paris: Masson et Cie. [Date taken from Huber, 1899, p. 15; original undated; ticks referred to pp. 68-84, Figs. 4-8.]
- Du Buysson (1896), Observations sur les accidents produits par la piqure des Acariens du genre *Argas*. *Ann. Soc. Entomol.*, 10 pp. (Cit. Huber, bibl., 1899, p. 15.)
- Dugès, Alf. (1876), *Repertorio de Guanajuato*, Mexico. (Cited by Mégnin, 1885, pp. 463, 466, etc., who gives translated extracts and reports on subsequent personal communications received from Dugès and Aleman. Also cited by Neumann, 1892, *Malad. Parasit.*, p. 101.)
- (1883), *Naturaleza de México*, v. 195. (Cited by Mégnin, 1885, pp. 465, 472, who gives a figure of *A. megnini* Dugès. Cited by Neumann, 1896, p. 16.)
- (1884), Turicata y garrapata de Guanajuato. *La Naturaleza, Periódico científico de la Sociedad Mexicana de Historia natural*, vi. (1882-1884), México, pp. 195-198, Pl. IV. (MS. dated Nov., 1882.)
- (22. v. 1888), Description d'un nouvel Ixodidé. *Bull. Soc. Zool. France*, xiii. 129-133, Figs. 1-3.
- (1891), *La Naturaleza* (2), i. 20, 1 Pl. (Cit. Neumann, 1896.)
- (1893), Un nuevo Ixodide. *Naturaleza*, ii. 164.
- Dugès, A. L. (1834a), Recherches sur l'ordre des Acariens en général et la famille des Trombidés en particulier; Première mémoire. *Ann. de sci. nat.*, Paris, sér. 2. i. *Zool.*, pp. 5-46, Pl. I. (Reprint paged 1-42.)
- (1834c), Recherches sur l'ordre des Acariens; Troisième mémoire. Remarques sur la famille des Gamases. *Ann. de sci. nat.*, Paris, sér. 2, ii. *Zool.*, pp. 18-63, Pls. VII, VIII. (Reprint paged 1-44.)
- (1836), Recherches sur l'ordre des Acariens en général (i) et la famille des Trombidés en particulier (ii). Remarques sur la famille des Hydracnés (iii). *Ann. des Sc. nat.*, 2^e sér., *Zool.* vol. i., reprint pp. 42, Pl. I (i. Mémoire); *ibid.* pp. 30, Pls. X, XI (ii. Mém.); *ibid.*, vol. ii. pp. 46, Pls. VII and VIII.
- Dugès, A. L., and Milne Edwards (no date), "Arachnides" in *Le Règne Animal*, by G. Cuvier. Paris: Masson. (Figs. illustr. Ixodoidea on Pl. XXVII.)
- Dujardin, F. (1844), Sur les acariens, en particulier sur les organes de la manducation et de la respiration chez les animaux. *Compt. Rend. Acad. Sci.*, Paris, xix. 1158-1161. (Buccal and sucking apparatus.)
- Duméril, C. D. (1822), Article "*Ixodes*" in *Dictionnaire des Sciences naturelles*, xxiv. 55. (Extracts cited by Pagenstecher, 1861, p. 9. Ticks described under "insectes parasites aptères," contains no information worth noting.)
- (1829), Article "*Tique*" in *Dictionnaire des Sciences naturelles*, liv. 401. (Extracts cited by Pagenstecher, 1861, p. 9. Nothing worth noting.)
- (1860), *Institut*. Sect. 1, No. 1373. (Reference given thus by Pagenstecher, 1861, p. 10, who cites matter of no value from the article. Duméril states that *Croton ricinus* of dogs also occurs on lizards.)
- Duplain (1885), Observation sur un cas de parasite du genre *Ixode*. *Loire méd.*, St-Étienne, iv. 57.
- Duplay, see Reclus.

- Dupré (1819)**, *Voyage en Perse fait dans les années 1807, 1808 et 1809*, II. 324. Paris.
(Lengthy quotations of essential parts in Fischer de Waklheim (1823), Laboulbène (1867), and Laboulbène and Mégnin (1882): *A. persicus*.)
- D'Urban, W. S. M. (1903)**, Birds killed by Ticks. *Zoologist*, LXI., 4. s. p. 108.
(Two gorged ticks (sp. not stated) found attached about eye of a stock dove picked up dead with eye destroyed; other ticks on bird's head, totalling 6-8 in number. Also found a dead warbler with 2 large ticks on throat and head.)
- Dutton, J. E., and Todd, J. L. (XI. 1905)**, The nature of human tick-fever in the eastern part of the Congo Free State (dated 28. III. 1905). *Liverpool School of Tropical Medicine—Memoir* XVII., 18 pp., 9 Charts; see also *Brit. Med. Journ.*, II. 1259, 1260.
- Edington, A. (1898)**, Redwater, Texas fever, or tick disease. *Agric. Journ.*, Cape Town, XII. 690-696. (S. and H. bibl.)
- Efsio, M. (1892)**, Saggio d' un catalogo metodico dei principali e più comuni animali invertebrati della Sardegna. *Bollettino della Società Romana per gli studi Zoologici*, I. (6), 246-282. (S. and S. bibl.)
- Eichwald (1830)**, *Zool. specialis*, II., p. 63, Pl. II, Fig. 18. (*Ixodes arenicola*. Cited by Gervais and by Neumann, 1899, p. 165, from Gervais.)
- Ellison, A. (1903a)**, Birds killed by ticks. *Zoologist*, Lond. (743), 4. s. (77), v. 7, May 15, p. 194. (Refers to midges, no word of ticks!)
- Elmassian, M. (10. X. 1910)**, Sur les glandes salivaires chez quelques espèces de tiques. *Arch. zool. expériment. et générale*, XLV. 379-419, Pls. VIII-IX, 7 Text-Figs. (*Argas persicus*, *Boophilus annulatus*, *Hyalomma aegyptium*), reprint.
- Entomological Research Committee (25. XI. 1909)**, *Instructions to Collectors*. Issued by the Entomol. Res. Com. (Tropical Africa) and printed for the use of the Colonial Office. Misc. No. 241, 20 pp. London: printed for H. M. Stationery Office, by Darling and Son Ltd.
- Ercolani, G. B. (1859)**, *Nuovi elementi teorico-pratici di medicina veterinaria; Dei parassiti dei morbi parassitarii degli animali domestici*, pp. 550, Bologna. (S. and S. bibl.)
- Ernouf, Baron (1880)**, *Le Caucase, la Perse, etc., d'après les relations de M. de Thielmann*, p. 256. Paris, 1880. (*A. persicus*, cit. Huber, bibl. 1899, p. 16.)
- Evans, W. (IV. 1906)**, Some Invertebrata, including *Ixodes borealis*, from St Kilda. *Ann. of Scottish Nat. Hist.*, pp. 83-88, 1 Fig. (of *I. borealis*), reprint.
- (I. 1907), Some Scottish Ixodidae (Ticks). *Ann. of Scottish Nat. Hist.*, pp. 34-37, reprint.
- Fabricius, J. C. (1775)**, *Syst. Entomologiae*, p. 810. (Only lists, under *Acarus*, some of the names included in Fabricius, 1794, p. 425.)
- (1787 a), *Mantissa insectorum sistens species nuper detectas adiectis synonymis, observationibus, descriptionibus, emendationibus*, vol. II., 382 pp., 8°, Hafniae.
- (1794), *Entomologia systematica, emendata et aucta, secundum classes, ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus*, IV. pp. 472 + index, pp. 5, Hafniae. (Ticks: see pp. 425-434.)
- (1805), *Systema anthiatorum secundum ordines, genera, species adiectis synonymis, locis, observationibus, descriptionibus*, pp. xiv + 15-372 + 30, 12°, Brunsvigae.

- Fairmaire, E., and Simon, E. (1882)**, Récoltes entomologiques de M. A. Burdo sur le trajet de Zanzibar aux grands lacs. *C. R. de la Soc. Entom. de Belgique*, xxvi. 60 (*Amblyomma hippopotamense* Denny). (Cit. Neumann.)
- Fanzago, F.** see **Canestrini**.
- Feldmann (1905a)**, Ueber *Filaria perstans* im Bezirk Bukoba. II. Theil mit 1 Tafel. *Arch. f. Schiffs- u. Tropen-Hygiene*, ix, (2), 62-65.
- (1905b), On *Filaria perstans* in the Bukota District. (Transl. by T. S. Kerr of the preceding: Feldmann, 1905a.) *Journ. Tropical Medicine*, viii, (8), 125-126. (Should be "Bukoba"; author's name also misspelt by translator.)
- Ferg (1814)**, Remarques sur les insectes de Surinam dont la piqure est nuisible. *Biblioth. méd.*, Paris, An 11, xxxiv. 100-101; also (same title) *Ann. de Méd. de Harles* (S. and H. bibl.).
- Ficker, M. and Rosenblatt, S. (1907)**, *Argas miniatus* und Hühnerspirillose. *Hygienische Rundschau* (Berlin), xvii. 1114-1118, 5 Figs. (reproductions of photographs of *A. persicus*, eggs, larva, o, ♂, ♀, poor).
- Firth**, see **Notter**.
- Fischer de Waldheim, G. (1823)**, Notice sur l'Argas de Perse (Mallèh de Mianèh) décrit par les voyageurs sous le nom de punaise venimeuse de Miana. *Mem. Soc. imp. de nat. de Moscou*, vi. 269-283, Pl. XXIII, Figs. 1-11. (Figs. 1, 2 *I. camelinus*, 3-7 *I. ricinus*, 8-11 *Argas persicus* Fischer n.sp. Gives an account of known species of ticks, quoting other authors.)
- (1824), Du Mallah de Miana, insecte de Perse, dit punaise venimeuse. (Abstract of Fischer von Waldheim, 1823, by J. J. Virey.) *Journ. de Pharm.*, Paris, x. (5), Mai, pp. 242-245. (Note by Latreille, p. 245.)
- Fischer, H. (1849)**. See **Gené**, 1849.
- Fitch, A. (1856 a)**, *First and second report on the noxious, beneficial and other insects of the State of New York*. Made to the State Agricultural Society, pursuant to an appropriation for this purpose from the Legislature of the State. 336 pp., 35 Figs., 4 Pls., 8°, Albany.
- (1872), Fourteenth report on the noxious, beneficial, and other insects of the State of New York. *Annual Rept. (1870), 1872, Trans. N. Y. State Agric. Soc.*, xxx., pp. 355-381. (Pp. 363-373 describes: *I. americanus*, *I. quinquestriatus*, *I. robertsoni*, *I. cruciarius*, *I. (?) odontalgiae*.)
- Fitz, R. H.** see **Wood, H. C.**
- Foley**, see **Brumpt**.
- Francis, F.** see **Connaway**.
- Francis, M. (1889)**, Report of the veterinarian. *Texas Agric. Exp. Sta.*, second Annual Report, 1899, pp. 55-60. (Brief account of the southern cattle plague and its treatment, with notes on joint experiments by the Texas and Missouri Stations. H. and H. bibl.)
- (1892 a), The cattle tick; preventive measures for farm and range use. *Bull.* 24, *Texas Agric. Exper. Station*, Bryan, pp. 253-256, 1 Fig. (S. and H. bibl.)
- (1894), Veterinary Science. *Bull.* No. 30, *Texas Agric. Exp. Sta.*, March, pp. 436-458, Pls. I-III. (S. and S. bibl.)
- (1896 a), Dipping cattle for ticks, as practised at the Texas Experiment Station. *Texas Farm and Ranch*, Dallas, xv. 2-3, Figs. 1-7. (S. and H. bibl.)
- (1896 b), Ticks and Redwater. *Journ. Bur. Agric.*, Adelaide, viii. 210-213, 7 Figs. (same as Francis, 1896 a. S. and H. bibl.)

- Francis, M., and Connaway, J. W.** (1899), Texas fever. *Texas Agric. Exp. Sta.* Bull. 53, pp. 53-106, Figs. 13. (H. and H. bibl.)
- Frauenfeld, G.** (1853), [*Eschatocephalus gracilipes*]. *Verhandlungen des K. K. zool.-bot. Vereins in Wien*, III. 55-58, Pl. Figs. 4-5 (♀).
- (1854), Ueber einen bisher verkannten Laufkäfer...ferner einige von Schmidt in Schischka neu entdeckte Höhlenthiere. *Abhandl. des zool.-bot. Vereins in Wien*, IV. 23-34 (see pp. 27-30 re Ticks).
- (1867), Zoologische Miscellen, XI. (Das Insektenleben zur See). *Verhandl. der K. K. zoolog.-botan. Gesellsch. zu Wien*, XVII. 461-462.
- Freer** (1898), The tick plague. *Agric. Journ.*, Cape Town, XIII. 256-260. (S. and S. bibl.)
- Frey and Leuckart** (1847), *Vergleichende Anatomie der wirbellosen Thiere*, pp. 139, 151, 154. (Describe intestine of tick. Cit. Pagenstecher, 1861, p. 13.)
- Frisch, J. L.** (1724), *Beschreibung von allerlei Insecten in Teutschland*, nebst nützlichen Anmerkungen und nöthigen Abbildungen von diesen kriechenden und fliegenden inländischen Gewürme, zur Bestätigung und Fortsetzung der gründlichen Entdeckung, so einige von der Natur dieser Creaturen herausgegeben, und zur Ergänzung und Verbesserung der andern. Theil v., pp. 55, 27 tab. (Passage re oviposition is cited verbatim by Fischer in his translation of Gené [see Gené, 1849, p. 17, foot-note].)
- (1736), *Beschreibung von allerlei Insecten in Teutschland*, vol. v., cap. ix., pp. 41-42, Pl. II, Fig. 19. (Apparently a later edition of the foregoing, passages quoted by Pagenstecher, 1861, p. 4. Ticks occurring on dogs are known as Zäcken, Täcken and Taeken in German, Low German and Old German respectively. Occur on hunting dogs, especially when kept in wooden kennels, also picked up by them in the woods etc. Ticks occur on young swallows and other young birds in nests. Ticks 8-legged. Observed oviposition.)
- Fritsch, G.** (1875), Ueber die sogen. "Giftwanze von Mianah." *Sitzungsber. d. Gesellsch. naturf. Freunde zu Berlin*, pp. 61-64. (*A. persicus*, cit. Huber, bibl., 1899, p. 16.)
- Froggatt, W. W.** (1901), The fowl tick (*Argas americanus* Packard). *Agric. Gaz., N. S. Wales*, XII. 1349-1352, Pl. (inaaccessible).
- (1906), Notes on fowl-tick and poultry. *Agric. Gaz., N. S. Wales*, XVII. 14-18.
- (1906 a), Description of a new tick belonging to the Family Argasidae. *Proc. Linn. Soc. New South Wales*, XXXI. 401. (*Argas lagenoplastis* n.sp. (L.E.R.))
- Fuchs** (1842), *Allgemeine Pathologie der Haussäugethiere*, p. 177. (Brief mention of Ticks. Cit. Pagenstecher, 1861, p. 12.)
- Fullager, J.** (1874a), A Canterbury Arachnid, new to the British Fauna. *Science Gossip*, 1874, pp. 121, 122, Fig. 86.
- (1874b), The Canterbury Tick (*Argas reflexus*). *Science Gossip*, 1874, p. 234, Fig. 164.
- Fülleborn and Mayer, M.** (1908), Ueber die Möglichkeit der Uebertragung pathogener Spirochaeten durch verschiedene Zeckenarten. *Arch. f. Schiffs- u. Trop.-Hyg.*, XII. 31.
- Fuller, C.** (XI. 1896), The bovine tick-fever. *Agric. Gazette, N. S. Wales*, VII. 760-787, Pls. I-V, 3 Text-Figs.

- Fuller, C. (1897)**, A Fowl-infesting Tick (*Argas* sp. [sic]). *Agric. Gaz., N. S. Wales*, vii. 590.
- (16. III. 1899), The common blue tick of Cape Colony and its relationship to the Red Water tick of N. America and Australia. *Agric. Journ.*, Cape Town, No. 9, 8 pp. repr.
- (v. 1899), Notes on the Queensland cattle tick, and its relationship to the Texas fever tick and the blue tick of Cape Colony (South Africa). *Queensland Agric. Journ.*, Brisbane, iv. 389-394, 3 diagrams. Reprint. (Relates to *Boophilus australis* Fuller and *B. annulatus*; the paper is reprinted in Salmon and Stiles 1901, pp. 428-432, including the figures.)
- Füsslin, J. C. (1775)**, *Verzeichniß schweizer Insekten*, p. 59. (Only lists *Acarus reduvius* "Holzbock" and *A. ricinus* "Hundsbock" after Linnaeus; notes occurrence of *ricinus* on cats. Cit. Pagenstecher, 1861, p. 6.)
- Fumouze (1873)**, Sur un Acarien de la famille des Ixodes, *Argas persicus*. *Ann. Soc. Entomol.* (Cit. Huber, bibl., 1899, p. 16.)
- Fürstenberg, M. H. (1861)**, *Die Krätzmilben der Menschen und Thiere*, pp. i-v + 1-240, Taf. I-XV, 4^o, Leipzig. (S. and S. bibl.)
- Galli-Valerio, B. (ix. 1907)**, Les insectes comme propagateurs des maladies: Le rôle des arthropodes dans la dissémination des maladies. *Ber. ü. d. XIV. Internat. Kongr. f. Hygiene u. Demogr.*, Berlin, 23-29 Sept., 1907, II. 189-194. (A short review of progress to date, refers briefly to ticks.)
- (1908 a), Spirochétiose des poules déterminée à Lausanne avec *Argas persicus* Fischer de Tunisie. Note préliminaire. *Centralbl. f. Bakteriöl. u. Parasit.*, Abt. 1 Orig. XLVII. 494-495.
- (1908 b), Notes de Parasitologie, *Ibid.* XLVII, pp. 608-612, 1 Text-Fig. (See pp. 611-612, observations on biology of *Ixodes hexagonus* and *I. ricinus*, ovipositing ♀'s shown in figure.)
- (1909), Recherches sur la spirochétiose des poules de Tunisie et sur son agent de transmission: *Argas persicus* Fischer. *Ibid.* L. 189-202, 8 Figs.
- Gamgee, J. (1869)**, The splenic or periodic fever of cattle. *Reports on the diseases of cattle in the United States, made to the Commissioner of Agriculture, Washington*, pp. 89-161, Fig. 18. (S. and S. bibl.)
- (1871), *Our domestic animals in health and disease*, II, division 3, pp. xvi + 613, Figs. 149-237 (238). (S. and S. bibl.)
- Garner, R. (1844)**, *The Natural History of Staffordshire*, etc. London: John van Voorst, 551 pp., with unnumbered plates. (On p. 331 he merely lists "*Caris vespertilionis*, on the common bat," the latter probably *Vesperugo pipistrellus*. *Caris*=*Argas*. (L. E. R.))
- Gaubert, P. (16. v. 1892)**, Recherches sur les organes des sens et sur les systèmes tégumentaire, glandulaire et musculaire des appendices des arachnides. *Thèses présentées à la Faculté des Sciences de Paris*. Paris: G. Masson, pp. 184, 4 Plates. (Relates to sense-organs etc. in spiders.)
- de Gay (1849-51)**. See Gervais (same date).
- de Geer, C. (1778)**, *Mémoires pour servir à l'histoire des insectes*, vii., pp. iii-xii + 950, Pls. I-XLIX. (See "Mitte ricinoide," pp. 98-106, and Pl. V, Figs. 16-19, Pl. VI, Figs. 1-8.)

Bibliography of the Ixodoidea GEN-GOR

- Gené, G. (1844)**, Memoria per servire alla storia naturale degli issodi. *Mem. d. R. Accad. Torino*, 2d ser. ix. (1848), 751-786.
- (1849), *Beiträge zur Naturgeschichte der Zecken* von Professor J. Gené in Turin. Aus dem Italienischen, mit Anmerkungen von Dr H. Fischer, Privatdocent zu Freiburg, pp. 34, 4^o. Freiburg im Breisgau: F. X. Wangler.
- George, C. F. (1876)**, On "The Blyborough Tick" (*Argas Fischerii*). *Journ. Quekett Microsc. Club*, iv. 223-225, Pls. XXI and XXII; also *Sc. Gossip*, 1877, O.S. XIII. 104.
- Gerstaecker, C. E. A. (1860)**, *Argas reflexus* Latr., ein neuer Parasit des Menschen. *Virchow's Arch.*, xix. 457-470, Pl. XV, Figs. 1-6.
- (1863), "Arthropoden" in *Handbuch der Zoologie*, by Peters, Carus and Gerstaecker. Leipzig, II. 1-421, 8^o. (See Acarina, pp. 343, 344.)
- (1873), Gliederthiere Ostafrika's von C. v. d. Decken's Reise, pp. 464-470. (*Ambl. eburneum*, *Dermacentor pulchellus*, *O. savignyi*.)
- Gervais, P. (1842)**, *Ann. Soc. Entomol.*, xi., pp. xlviii and 47. (Cit. Neumann, 1899, p. 157.)
- (1844), Acères Phrynéides, Scorpionides, Solpugides, Phalangides et Acarides, Dicères Épizoïques, Aphaniptères et Thysanoures, in vol. III. of Walckenaer's *Histoire naturelle des Insectes*. Aptères, pp. i-viii, 1-476, Paris.
- (1847), in vol. IV. of Walckenaer's *Histoire naturelle des Insectes*. Aptères, pp. i-xvi, 1-623, Paris.
- (1849-51), in de Gay's *Historia física y política de Chile*. Zoologie, IV. 44, Pl. V, Fig. 8. (Cit. Neumann.)
- see **Walckenaer**.
- Gervais, P., and van Beneden, P. J. (1859)**, *Zoologie médicale; exposé méthodique du règne animal*. 2 vols., 8^o, Paris.
- Gibert, J. M. (1896)**, *L'Argas reflexus* et son parasitisme chez l'homme. Thèse: Bordeaux, 60 pp., 8^o, illustr. (Cit. by Mosler and Peiper (1904, p. 373) who state author observed general symptoms after bite of *A. reflexus* in man.)
- Giebel, C. G. (1874)**, *Insecta Epizoa*. Die Parasiten der Säugethiere und der Vögel. Leipzig. (Title cited by Riley, 1888.)
- (1877), *Amblyomma splendidum*, eine neue Zecke von *Bos brachycerus*. *Zeitschr. f. die ges. Naturwissenschaft*, XLIX. 293-295. (*Amblyomma splendidum*, Giebel.)
- Goeze (1780)**, *Naturforscher*, xiv., p. 111. (*Acarus ricinus* in large numbers on squirrels and jays. The author remarks "man könnte jetzt hinzufügen: habitat in avibus." Mouthparts illustrated on Pl. V, Fig. 5. Cit. Pagenstecher, 1861, p. 6.)
- Gomez, L.** see **Ricketts**.
- Gonder, R. (1906)**, *Achromaticus vesperuginis* (Dionisi). *Arb. a. d. Kaiserl. Gesundheitsamte*, xxiv. 220-226, Pl. IV.
- (1908), Studien über die Spirochaete aus dem Blute von *Vesperugo kuhlii*, Keys. u. Blas. (Natterer). *Arb. a. d. Kaiserl. Gesundheitsamte*, xxvii. 406-413, Pl. VI.
- Gordon, P. R. (1898)**, *Report of the Chief Inspector of Stock and Registrar of Brands for the year 1898*, 4 pp. Brisbane: E. Gregory, Government Printer.
- (1900), *Report of the Chief Inspector of Stock and Registrar of Brands for the year 1900*, pp. 16. Brisbane: G. A. Vaughan, Govt. Printer.

Bibliography of the Ixodoidea GOR-HAL

- Gordon, P. R. (1. X. 1900), Results of dipping tests. *Queensland Agric. Journ.*, 1900, pp. 387-390. Reprint. (Tick eradication.)
- (1901), *Report of the Chief Inspector of Stock and Registrar of Brands for the year 1901*, 5 pp. (34 × 21 cm.). Brisbane (Queensland): G. A. Vaughan, Govt. Printer.
- Graham-Smith, G. S. see Nuttall.
- Gray, C. E., and Robertson, W. (1902), Redwater in Rhodesia. *Agric. Journ., Cape of Good Hope*, xxi. 435-458.
- (1902), *Report upon Texas fever or redwater in Rhodesia*. Argus Printing and Publish. Co., Ltd., Cape Town, pp. 27, Pls. XXII. (H. and H. bibl.)
- Gray, E. see Theiler.
- Greig-Smith, see Meek.
- Grimbert, L. see Guiart.
- Grube, A. E. (1859), Verzeichniss der Arachnoiden Liv-, Kur-, und Ehstlands. *Arch. für die Naturkunde Liv-, Ehst-, und Kurlands*, Dorpat, ser. 2, I., pp. 417-486, Figs. 1-8. (S. and S. bibl.)
- Grützner, P. (1902), Ueber die Wirkung der Zecke auf thierisches Blut. *Deutsche med. Wochenschr.*, Jahrg. xxviii. pp. 555, 556.
- Guérin-Ménéville (1829-1843), *Iconographie du règne animal*, de G. Cuvier. Arachnides, Pl. VI, Figs. 1-6, pp. 16, 17.
- (1849), Description de l'*Argas talaje*. *Rev. et Mag. de Zool.*, pp. 342, 343, Pl. II.
- Guiart, J. (1911), *Les Parasites inoculateurs de maladies*. Paris: E. Flammarion, 18 × 12 cm., 362 pp., 107 Text-Figs. (Pp. 124-126 brief mention of ticks, Fig. 44 of ♀? *Boophilus*; pp. 131-132 mention of *Argas moubata* [sic] and *A. persicus* with Figs. 48, 49, poor; a semipopular treatise.)
- Guiart, J., and Grimbert, L. (1906), *Diagnostic Chimique, Microscopique et Parasitologique*. Paris: F. R. de Rudeval, Editeur, 960 pp., 500 Figs. (*Ixodidae*: pp. 656, 666, Figs. 401-410, of which 402 and 410 of *Hyal. aegyptium* and *O. moubata* are original but very sketchy. The text is compiled from various authors.)
- Gulliver, G. (1872), On a Canterbury Arachnid new to the British Fauna. *Quart. Journ. Micr. Sci.*, xii. N.S., 205, 206.
- Gulliver and Gulliver (ca. 1871), *Reports of East Kent Nat. Hist. Soc.* Abstracts of paper in *Quart. Journ. Micr. Sci.*, April-Oct., 1872. (Cited by Fullager, 1874a, p. 121.)
- Gurlt (1843), In Gurlt and Hertwig's *Magaz. f. d. gesammte Thierheilkunde*, ix. 22, Pl. I, Fig. 18. (Brief mention of *I. ricinus* and *reticulatus* and the structure of their mouthparts. Cit. Pagenstecher, 1861, p. 12.)
- Hadwen, S. see Nuttall.
- Hahn, C. W. (1834), *Die Arachniden*, II., p. 62, Fig. 152. (*I. reduvius*.)
- Hahn, C. W. and Koch, C. L. (1831-48), *Die Arachniden*. Nürnberg, 16 vols., 563 Pl. (Title cited by Riley, 1888.)
- Haller, G. (1880), *Die Milben als Parasiten der Wirbellosen, insbesondere d. Arthropoden*, pp. 90, Figs. 17, 8°. Halle: Schwetschke. (S. and S. bibl.)
- (1881 a), Vorläufige Bemerkungen über das Gehörorgan der Ixoden. *Zool. Anz.*, iv. 165-166, 1 Fig. (Brief review also in *Journ. Roy. Microsc. Soc.*, 1881, i. 449.)

- Haller, G.** (1881 b), Die Mundtheile und systematische Stellung der Milben. Vorläufige Mittheilung. *Zool. Anz.*, iv., pp. 380-386. (Re mouthparts of Acari.)
- (1882), Beitrag zur Kenntniss der Milbenfauna Württembergs. *Jahreshefte des Vereins für vaterländische Naturkunde in Württemberg*, xxxviii., Stuttgart, pp. 293-325, Pl. V. (See especially pp. 309-312, re *Ixodidae*, and Figs. 4 and 5.)
- Hardy, C.** (1869), *Forest Life in Acadie*. (Murray, 1877, p. 194, quotes a passage therefrom regarding ticks on moose.)
- Hart, G. H.** see **MacKellar**.
- Hart, J. H.** (1899), The tick of the domestic fowl and fowl fever. *Bulletin of Miscellaneous Information*, Trinidad, iii. Bull. 19, Pt. 11, April, p. 180.
- Hassall, A.** (1900), Note on the chicken tick (*Argas americanus*). 16th Annual Report of the Bureau of Animal Industry, 1899, U. S. Dept of Agric., pp. 496-500, Figs. 16-22, Pl. XVI. (Reprint dated 1901.)
- see **Stiles**.
- Haug** (28. VIII. 1894), *Ixodes* im Meatus auditorius externus bei 17-jähr. Burschen, der im Walde geschlafen hatte. Entfernung nach Tödtung durch Sublimatlösung. *München. med. Wochenschr.*, No. 35. (Huber, bibl., 1910, p. 24.)
- Heller, A.** (1880), *Die Schmarotzer mit besonderer Berücksichtigung der für den Menschen wichtigen*, 74 woodcuts, 1 Map, 230 pp. München and Leipzig: R. Oldenbourg. (P. 154, less than a page devoted to "The tick," contains nothing original or worth noting.)
- Heller, C.** (1858), Zur Anatomie von *Argas persicus*. *Sitzungsberichte d. Kaiserl. Akad. Wien*, xxx., Math.-naturwiss. Klasse, pp. 297-326, Pls. I-IV.
- Henking, H.** (1882), Beiträge zur Anatomie, Entwicklungsgeschichte und Biologie von *Trombidium fuliginosum* Herm. *Zeitschr. f. wiss. Zool.*, xxxvii. 553-663, Plates 34-36. (Structure etc. comparable to that of ticks.)
- Herbst** (1787), Vide Borowsky's *Naturgeschichte der Insekten*, p. 140. (*Acarus ricinus* and *A. marginatus* mentioned. Nothing of interest judging from citation in Pagenstecher, 1861, p. 7.)
- Hermann, J. F.** (1804), *Mémoire aptérologique*, An xii, pp. 63-71, Pls. IV, VI, VII, Strasbourg.
- Herrera, A. L.** (1905), Los Parásitos del Ganado. *Com. Parasit. Agrícola.*, circ. 8, pp. 22-25, Figs. 31-34. (H. and H. bibl.)
- Heusinger** (1847), *Rech. d. pathol. comparée*, I., p. 603. (Huber, bibl., 1910, p. 21.)
- Heyden, C. von** (1826), Versuch einer systematischen Eintheilung der Acariden. *Isis* von Oken, Jena, i. Heft 6, pp. 608-613. (His system is reprinted in Michael, 1883, pp. 32-34.)
- Hill, W. E.** (1897), Texas fever in Kansas (and California). 12th Ann. Rep. Bur. Animal Industry, U. S. Dept. Agric., 1895, Washington, D. C. (Cit. Nuttall, 1899.)
- Hinde, S. L.** (1897), *La Chute de la domination des Arabes du Congo*. Th. Falck and Cie, Bruxelles. Chap. xii., p. 3. (Refers to fever about Kasongo attributed by natives to tick-bite.)
- Hirst, S., and Hirst** (ix. 1910), Description of five new species of ticks (Ixodidae). *Ann. a. Magaz. of Nat. Hist.*, ser. 8, vi. 299-308, 9 Text-Figs. (*Ambl. darwini*, *Ambl. boulengeri*, *Ambl. nitidum*, *Ambl.* (? Apon.) *neglectum* and *Ambl.* (Apon.) *tenimberense*.)

- Hoehr, F.** (VII. 1893), Further concerning the new chicken plague in Texas. *Insect Life*, v. 348.
- Hoeven, J. von der** (1850), *Naturgeschichte der wirbellosen Thiere*. (Brief Latin description of ticks. Mentions that only the females of *ricinus* attach themselves to host. *Argas* included under Gamasei. Cit. Pagenstecher, 1861, p. 14.)
- Holland, W. J.** (IV. 1898), Concerning Ticks. *Canadian Entomologist*. London, Ontario, xxx. 96, 97.
- Hooker, Sir J.** (1854), *Himalaya Journal*. (Cited by Michael, 1892, p. 204, re colour-changes in Ixodidae.)
- Hooker, W. A.** (1908a), Life-history, habits and methods of study of the Ixodoidea. *Journ. Econ. Entomol.*, i. 34-51. (Good original observations.)
- (1908b), A review of the present knowledge of the rôle of ticks in the transmission of disease. *Journ. Econ. Entomol.*, i. 65-73. (A useful digest of some recent work.)
- (1909a), Some Host Relations of Ticks. *Journ. Econ. Entomol.*, ii. 251-257.
- (1909b), Note on an extra nymphal moult of *Argas miniatus*. *Proc. Entomol. Soc. Washington*, xi. 109-110.
- (XII. 1909), The geographical distribution of American Ticks. *Journ. Econ. Entomol.*, ii. 403-428.
- see **Hunter**.
- Howard, C. W.** (17. VI. 1908), A note on the distribution and hosts of *Ixodes pilosus howardi* Nn. *Trans. Roy. Soc. S. Africa*, i. 126 (published vii. 1909).
- (VII. 1908), A list of the Ticks of South Africa, with Descriptions and Keys to all the forms known. *Annals of the Transvaal Museum*, i. 73-172, 14 Pl.
- (VIII. 1909), A new species of *Haemaphysalis* from South Africa. *Ann. Transvaal Museum*, i. 219-223, Pl. XXXIV (10 figs.). Reprint. (*Haemaphysalis africana* C. W. Howard, August 1909 = *Haemaphysalis hoodi* Warburton and Nuttall, June, 1909. The author describes the ♂, ♀, o and L and illustrates them in the plate.)
- (VIII. 1909), Note on the copulation of ticks. *Ann. Transvaal Mus.* i. 225. Reprint, 1 p. (Records finding *Rhipicephalus ecinctus* Nn.: an unfed female and male supposedly copulating. No particulars as to position of male mouth-parts etc.)
- Howard, L. O.** (VII. 1895), Note on the chicken tick. *Insect Life*, vii. pp. 417, 418.
- (1907), A chalcidoid parasite (*Ixodiphagus texanus* gen. et sp. n.) of a tick (*Haemaphysalis leporis-palustris*). *Entomol. News*, Philadelphia, xviii. 375-378, Pl.
- (1908), Another chalcidoid parasite of a tick. *Canad. Entomol.*, Toronto, xl. 110-115, Pl. V.
- (1909), Economic loss to the people of the United States through insects that carry disease. *U. S. Dep't Agric., Bur. of Entomol.*, Bull., No. 78, 40 pp. (Incidental mention of ticks on p. 7.)
- see **Riley and Howard**.
- Hubbard, H. G.** (1894), The insect guests of the Florida land tortoise, *Gopherus (Xerobates) polyphemus*. *U. S. Dep't Agric.*, vi. 306. (*Ornithodoros americanus* Marx (Ms.) in the burrows and on tortoise—*Amblyomma tuberculatum* Marx n.sp. on the tortoise.)

Bibliography of the Ixodoidea HUB-JAC

- Huber, J. Ch.** (1899), *Bibliographie der klinischen Entomologie*, 1899 (Argas, Ixodes), Heft 2. Jena: Fromann.
- (1910), *Bibliographie der klinischen Entomologie*. (Hexapoden, Acarinen), Heft 2, 2nd ed. (Ixodoidea, pp. 18–25. Contains several titles which have been incorporated in our bibliography.)
- Hunt, J. S.** (VIII. 1897), Tick Fever. *Progress Report to the Chief Inspector of Stock on experiments conducted at Hughenden*. Reprinted in *Queensland Agric. Journ.*, I. 104–106.
- (16. XII. 1897), Diseases in Animals (Tick Fever). Progress report on the reproductive forms of the micro-organism of tick fever, with some observations on the relationships and nomenclature of that disease. *Queensland Agric. Journ.*, 1898, II. 211–220; reprint 10 pp., 2 Pls.
- (9. IX. 1898), *Notes on the natural history and prevention of Texas fever*. Reprint, 10 pp. Brisbane: E. Gregory, Govt. Printer.
- see **Pound**.
- Hunt, S.** (1898), Tick fever. *Queensland Agric. Journ.*, pp. 235–236. (H. and H. bibl.)
- Hunt, S., and Collins, W.** (1896), *Queensland Report on tick fever, also Report of investigations at Hughenden on Texas fever*, VII.–X., 1896, by Dr Wynne, with appendix, map, temperature charts, lithographs. 43 pp. Brisbane: E. Gregory.
- Hunter, W. D.** (1907), Note on the occurrence of the North American Fever Tick on Sheep. *U. S. Dep't Agric. Bur. Entom.*, Circ. No. 91, pp. 1–3.
- (1908), A tentative law relating to the incubation of the eggs of *Margaropus annulatus*. *Journ. Econ. Entomol.*, I. 51–55. Reprint.
- (1909), A practical demonstration of a method for controlling the Cattle tick. *U. S. Dep't Agric. Bur. Anim. Industry*, Circ. No. 148, pp. 1–4.
- Hunter, W. D., and Hooker, W. A.** (1907), Information concerning the North American Fever Tick, with notes on other species. *U. S. Dep't of Agriculture, Bur. of Entomology, Bull. No. 72*. Washington: 12 Figs., 4 Plates, 87 pp.
- Husemann, T.** (1862), *Handbuch der Toxicologie*, p. 248. (*A. persicus*: cit. Huber, bibl., 1899, p. 16.)
- Hutcheon, D.** (1900), Redwater and its history. *Agric. Journ.*, Cape Town, XVII. 331–339, 395–409.
- (1900), History of heartwater. *Ibid.*, XVII. 410–417.
- (1903), Virulent redwater in the Transvaal. *Ibid.*, XXIII. 39–60.
- Illiger, K.** (1807), Anmerkung zu Chabrier's Bemerkung über die Fortpflanzungsweise der Gattung *Ixodes* Fabr. *Magazin für Insektenkunde*, VI. 368–370. (S. and S. bibl.)
- Jackschath, E.** (1901), Die "Malaria" der Rinder in Deutschland. *Centralbl. Bakt. Parasit.*, Abt. 1, XXIX. 585–589, 1 Text-Fig. (Little original, figure bad (*Piroplasma*), states he found "*Ixodes reticulatus* s. *reduvius*" on affected cattle; chiefly clinical.)

- Janson, J. L., and Tokishige, H. (1892)**, *Filaria immitis* und andere bei Hunden in Japan vorkommende Parasiten. *Mitth. d. deutsch. Ges. f. Natur- u. Völkerkunde Ostasiens in Tokio*, v. 349-360, Taf. XI-XII. (S. and S. bibl.)
- Jelgersma, B. (1901-1902)**, *Ixodes ricinus* (houtteek; houthuis; elsluis). *Med. Weekbl.*, Amsterdam, VIII. 285.
- Jobling, J. W., and Woolley, P. G. (1904)**, Texas fever in the Philippine Islands and the Far East. *U. S. D. War, Bur. Gort. Laboratories*, Bull. 14, pp. 5-11, Pls. XV. (H. and H. bibl.)
- Johannessen, A. (1885 a)**, Akut polyuri hos et barn efter stik af *Ixodes ricinus*. *Norsk Mag. f. Lægeridensk.*, Kristiania, 3. række, xv. 401-414.
- (1885 b), Acute Polyurie bei einem Kinde nach dem Stiche eines *Ixodes ricinus*. *Archiv f. Kinderheilk.*, VI. 337-350. (Cit. Nuttall, 1899, p. 43.)
- John, A.** see **Birch-Hirschfeld**.
- Johnson, L. C. (1884)**, [Cattle tick, *Ixodes boris*]. *Bull. No. 4, Div. of Entomology*, U. S. Dept. Agric., Washington, p. 78. (S. and S. bibl.)
- Johnston, G. (1849)**, The acarides of Berwickshire specifically described. *Proc. Berwick Nat. Club* (1842-1849), II. 371. (An abstract from this paper was kindly supplied by Mr William Evans of Edinburgh. G.H.F.N.)
- Joly, G. (1901)**, Maladie éruptive du cheval produite par des nymphes d'Ixode réduve. *Rev. vét.*, Toulouse, LVIII. 514-516. (*I. ricinus* on horse.)
- Jördens, D. J. H. (1801)**, *Entomologie und Helminthologie des menschlichen Körpers*, oder Beschreibung und Abbildung der Bewohner und Feinde desselben unter den Insekten und Würmern, I., pp. xxviii+319, Taf. I-XV. (S. and S. bibl.)
- Joseph, G. (1882)**, Systematisches Verzeichniss der in den Tropfstein-Grotten von Krain einheimischen Arthropoden, nebst Diagnosen der vom Verfasser entdeckten und bisher noch nicht beschriebenen Arten. *Berlin. entomol. Zeitschr.*, XXVI. 1-50. (Ixodidae: pp. 16, 17.)
- Jourdain, S. (1901)**, Pièces buccales des Ixodidés (Acar.). *Bull. Soc. Entom. France*, Paris, (6) p. 142.
- Kalm, P. (1754)**, Nachricht von einer Art Insekten in Nordamerika Waldlaus genannt. *Abhandl. d. Königl. schwed. Akademie*, XVI., translated by Kästner, 1758, p. 20. (Description "Acarus ovalis, planus, ruber, macula dorsali alba," called skoglus in Swedish, ticks or seed-ticks in English, remained attached for a month to a dog and attained an inch in length. Survived over a month after removal and laid over 1000 eggs apiece. The author may have been describing a species of *Amblyomma*. Cit. Pagenstecher, 1861, p. 6.)
- Karsch, F. (29. IV. 1878)**, Uebersicht der in Mossambique gesammelten Arachniden. *Monatsbericht der K. Akademie der Wissenschaft zu Berlin*, pp. 314-338, Pls. I, II. (Ixodoidea, pp. 336-338, Pl. I, Fig. 4, of *Amblyomma petersii* Karsch, nat. size, uncoloured.)
- (1878), Ueber einige von Herrn J. M. Hildebrandt im Zanzibargebiete erbeutete Arachniden. *Zeitschr. f. d. ges. Naturwiss.*, Berlin, ser. 3, III. (LI. d. ganzen Reihe), pp. 311-322, Pl. VIII (*Ornithodoros*).
- (1879 a), Westafrikanische Arachniden gesammelt von Dr Falkenstein. *Zeitschr. f. die ges. Naturwiss.*, LII. 336. (*Amblyomma arcanum* Karsch (L.E.R.).)

Bibliography of the Ixodoidea KAR-KOC

- Karsch, F.** (1879 b), Zwei neue Arachniden des Berliner Museums. *Mittheil. der Münchener entomol. Vereine*, Jahrg. III. 95, 96. ["*Margaropus* nov. gen.; *Margaropus Winthemi*, n.sp."]
- (1879 c), Arachnologische Beiträge. *Zeitschr. f. d. ges. Naturwiss.*, LII. 534. (Abstract.)
- (1880), Vier neue Ixodiden des Berliner Museums. *Mittheil. d. Münchener entomol. Vereine*, Jahrg. IV. 141, 142.
- Kelso, J. E. H.** (1903), Birds killed by Ticks. *Zoologist*, LXI., s. 4, p. 155. [Note on a Wagtail sp. caught on ship in Red Sea with several ticks attached to its head. See D'Urban, 1903, same subject.]
- Kerr, T. S.** (15. IV. 1905), Remarks on the paper by Feldman (1905) entitled "On *Filaria perstans* in the Bukota District." *Journ. of Tropical Med.*, VIII. (8), 126. (Should read "Feldmann" and "Bukoba.")
- Kilborne, F. L.** see **Smith, T.**
- King, W. W.** (27. VII. 1906), Experimental Transmission of Rocky Mountain spotted fever by means of the tick: preliminary note. *U. S. Pub. Health and Mar.-Hosp. Service, Pub. Health Rep.*, Wash., XXI., 863, 864.
- Kirk, T. W.** (1887), On *Ixodes Maskellii*, a Parasite of the Albatross (*Diomedea exulans*). *Trans. and Proc. New Zealand Institute*, 1886, XIX., pp. 65-67 (issued V. 1887), no figure.
- Klein, L. A.** (1907), Methods of Eradicating Cattle Ticks. *U. S. Dep't of Agriculture, Circular No. 110*, 16 pp., 3 Figs., Washington.
- Kleine, F. K.** (1906), Kultivierungsversuch der Hundepiroplasmen. *Ztschr. f. Hyg. u. Infektionskrankh.*, Leipz., liv. 10-15, 2 Pl.
- Kner** (1855), *Lehrbuch der Zoologie*, p. 235. (Ixodea a family in the order Acarina. Little information and inaccurate at that. Cit. Pagenstecher, 1861, p. 15.)
- Knuth, P.** (1905), *Experimentelle Studien über das Texasfieber der Rinder (la tristeza) in den La Plata Staaten*. Berlin: Verlagsbuchhandlung von Richard Schoetz, 1 Map, 4 Figs., 6 Tables, 96 pp.
- Koch, C. L.** (1835-1844), *Deutschlands Crustaceen, Myriapoden und Arachniden. Ein Beitrag zur deutschen Fauna*. Herausg. v. Herrich-Schäffer, 40 parts. Regensburg.
- (1844), Systematische Uebersicht über die Ordnung der Zecken. *Arch. f. Naturg.*, Berlin, Jahrg. x. Bd. I., 217-239. (*N.sp. and genera* from different parts of world. Mode of copulation. *Argasidae, Ixodidae, Rhipistomidae*. 10 genera.)
- (1847), *Uebersicht des Arachnidensystems*. Nürnberg. Heft 4, pp. 136, Pls. I-XXX.
- see **Hahn**.
- Koch, L.** (1867), Beschreibungen neuer Arachniden und Myriapoden. *Verhandlungen der K. K. zoolog.-botan. Gesellschaft zu Wien*, XVII. 173-250. (Ixodidae: pp. 241-243.)
- (1872), Apterologisches aus dem fränkischen Jura. *Abhandl. d. naturhist. Gesellsch. in Nürnberg*, v. 149.
- (1875), Aegyptische und Abyssinische Arachniden gesammelt von Herrn C. Jickeli beschrieben und abgebildet. 96 pp., 7 Pls., 4°. Nürnberg: Bauer and Raspe. (*O. savignyi*, p. 1.)

- Koch, L.** (1877 a), Japanesische Arachniden und Myriapoden. *Verhandl. der K. K. zoolog.-botan. Gesellsch. Wien*, xxvii. 735-798. (*Ixodes*: pp. 786, 787.)
- (1877 b), Verzeichniss der bei Nürnberg bis jetzt beobachteten Arachniden. *Abhandl. d. naturhist. Gesellsch. zu Nürnberg*, vi. 113-198. (P. 196: *Rhipicephalus expositivus*, n.sp. = *Haemaphysalis punctata* Canestrini and Fanzago.)
- Koch, R.** (1898), *Reiseberichte über Rinderpest, Bubonenpest in Indien und Afrika, Tsetse- oder Surrakrankheit, Texas-Fieber, tropische Malaria, Schwarzwasserfieber*. Berlin : J. Springer, 138 pp. (Cit. Nuttall, 1899.)
- (1898 a), Berichte über die Ergebnisse der Expedition des Geheimmedicinalrathes Dr Koch im Schutzgebiete von Deutsch-Ostafrika. *Centralbl. f. Bakteriöl.*, 1 Abt., xxiv. 200-204. (Berichte datirt 10 u. 12 Feb., 1898. Cit. Nuttall, 1899.)
- (1903), *Interim Report*, Bulawayo. (Cited by Dönitz, 1905, p. 111, as stating that *R. sanguineus* transmits coast fever of cattle in S. Africa—should be *R. appendiculatus* which Neumann formerly mistook for *R. sanguineus*.)
- (VII. 1903), The cattle disease in Southern Rhodesia. *Transvaal Agric. Journ.*, i. 112-117. (East Coast Fever investigations. Pp. 116-117 brief mention of ticks found in S. Rhodesia and elsewhere.)
- (1903 and 1904), *Reports on Rhodesian Redwater or African Coast Fever*. Salisbury : Argus Printing and Publishing Co. [Also (translated) in *Arch. f. Tierheilk.*, 1904. Cited by Lichtenheld, 1908, p. 272.]
- (29. II. 1904), Fourth Report on African Coast Fever. (Official), 10 pp. repr.
- (23. XI. 1905), Vorläufige Mittheilungen über die Ergebnisse einer Forschungsreise nach Ostafrika. *Deutsche med. Wochenschr.*, p. 1866.
- (1906), Ueber afrikanischen Recurrens. *Berlin. klin. Wochenschr.*, XLIII. 185, 10 Figs.
- Kolenati, F. A.** (1856 and 1857), *Die Parasiten der Chiroptern*, pp. 51, iv. Taf., 8°, Dresden. (The usual date cited is 1857, but Dr Hassall informs me that the same paper appeared in 1856, without the plates, although the latter are cited in the text. Consequently, species attributed to this publication must bear the date 1856.)
- (1857), Meletemata entomologica. Einige Arachniden der Caucasischen Länder u.s.w. *Bull. Soc. Impériale des Naturalistes de Moscou*, xxx. 399-444, Pl. V-VI. (Ticks, see pp. 431-439, Pl. VI, Fig. 52, *Ixodes corniger* Kolenati.)
- (1858), Synopsis prodroma der auf Chiroptern als Epizoen vorkommenden Lausmilben, *Carida* Kolenati. *Wien. entomol. Monatsschr.*, Wien, ii. pp. 4-7.
- (1860), Beiträge zur Kenntniss der Arachniden. *Sitzungsber. der mathem.-naturw. Classe der K. Akad. d. Wissensch. Wien*, XL, p. 573-581, Pls. 1-3.
- Kollar** (?), *Bildlichen Naturgeschichte des Thierreiches*, ii. 274, Fig. 7. (Cited by Heller, 1858, p. 297.)
- see **Pohl**.
- Kolle, W.** (1903), Ueber Texasfieber. *Verhandl. d. deutsch. Kolonial-Kongr. zu Berlin*, 10.-11. Oct. 1902, pp. 294-304.
- Koningsberger, J. C.** (1900), Onderzoekingen betreffende de Teken (Ixodidae) van Nederlandsch-Indie. *Teijsmannia*, xi., No. 1. (Cit. Neumann, 1901, p. 303.)
- (1903), De Rundteken en bloedzuigende Vliegen van Nederlandsch-Indië. *Veeartsenijk. Blad. v. nederl.-Indië*, Batav., v. 15 (2), 141-147, Pl., Figs. 1-14.

- Koschny, Th. F.** (1901), Das Texas-Fieber der Rinder. *Tropenpflanzer*, Berlin, v. 5 (2), 61-65.
- Kossel, H.** (1902), "Die Haemoglobinurie der Rinder," in Kolle and Wassermann's *Handb. d. pathogenen Mikroorganismen*. Berlin : Gustav Fischer, Lieferung 4-5, pp. 841-864, Pl. III (of *Piroplasma*). [See pp. 853 et seq. re *I. ricinus*, etc., in relation to piroplasmosis.]
- Kossel, H., and Weber** (1900), Ueber die Haemoglobinurie der Rinder in Finland. *Arch. u. d. Kaiserl. Ges.-Amt.*, xvii. (*I. ricinus* in relation to piroplasmosis in cattle.)
- Kossel, H., Schütz, Weber, Miessner** (1903), Ueber die Hämoglobinurie der Rinder in Deutschland. *Arbeiten u. d. Kaiserl. Gesundheitsamte*, Bd. xx. Heft 1, 77 pp., 3 Plates. (Very good photomicrographs illustrating the structure of *Ixodes ricinus*.)
- Kotzebue, M. de** (1819), *Voyage en Perse à la suite de l'ambassade Russe en 1817*. Paris, viii. 180. (For lengthy quotations of essential parts see Fischer de Waldheim (1823), also Laboulbène (1867), and Laboulbène and Mégnin (1882).)
- (1819), *Narrative of a journey into Persia, in the suite of the Imperial Russian Embassy, in the year 1817*. Translated from the German, viii+328 pp., Pls., London.
- Kramer, P.** (1877), Grundzüge zur Systematik der Milben. *Arch. für Naturgeschichte*, Berlin, Jahrg. XLIII., Bd. I., pp. 215-247.
- (1878), Beiträge zur Naturgeschichte der Milben. *Zeitschr. f. d. ges. Naturwiss.*, Berlin, ser. 3, III. (LI. der ganzen Reihe), pp. 519-561.
- Kramer, P., and Neuman, C. J.** (1883), Acariden während der Vega-Expedition eingesammelt. *Ur-Drega Expedit. Vetenskap. Jakttagelser*, III. 518, Pl. (*Ixodes putus* Pickard-Cambridge.)
- Krapf** (1882), *Suaheli Dictionary*; Trübner and Co., London. (Cited by Dutton and Todd, 1905, pp. 3, 18 as stating: "*Pasi*, plural *Papasi*, ticks, an insect said to cause fever in one who is bitten by it.")
- Küchenmeister, F.** (1855), *Die in und an dem Körper des lebenden Menschen vorkommenden Parasiten*, I. Abt.: Die thierischen Parasiten, 486 pp., 9 Plates. Leipzig: B. G. Teubner. (See pp. 421-424, re Ticks, one poor text-fig. of *Ixodes ricinus* after Gurlt, the same figure is also found in Zürn (1872).)
- Küchenmeister and Zürn** (1879), *Parasiten*, p. 538, et seq. (*Argas*, cit. Huber, 1899, p. 14.)
- Laboulbène, J. J. A.** (1867), article "*Argas*" in Dechambre's *Dictionnaire encyclop. des sci. méd.*, vi. 53, 54. (Quoted verbatim by Laboulbène and Mégnin, 1882, pp. 325-327.)
- (1867), "*Ixodes*" in *Dict. encyclop. des sci. méd.* (Cit. Rey, 1892.)
- (1881), Note sur des *Argas* de Perse envoyés par le Dr Tholozan. *Ann. Soc. entom. de France, Paris*, 6 s., v. 1, Bull. (16), lxxxviii-lxxxix.
- (1882), Sur le parasitisme de l'*Argas reflexus*. *Ann. Soc. entom. de France, Paris*, 6 s., v. 2, Pt 2, Bull. (7), xcvi-xcix.
- see Desnos, see Mégnin.

- Laboulbène, J. J. A., and Mégnin, J. P. (1882)**, Mémoire sur les *Argas* de Perse. *Journ. de l'anat. et de la physiol.* Paris, xviii. 317-341, Pls. XXI-XXIII.
- (1882), Sur les *Argas* de Perse. *C. R. Soc. de biol., Paris*, v. 34, 7 s., v. 4, p. 577.
- Lahille, F. (V. 1905)**, Contribution à l'étude des Ixodidés de la République Argentine. *República Argentina. Anales del Ministerio de Agricultura, Sección de Zootecnia, Bacteriología, Veterinaria y Zoología*, Vol. II., No. 2, 166 pp., 13 Plates, 23 Text-Figs. Buenos Aires: Imprimerie du Bureau Météorologique.
- Latreille, P. A. (1795)**, *Magazin encyclopédique*, iv. p. 15. (Cit. Michael, 1883, p. 29.)
- (1796), *Précis des caractères génériques des insectes, disposés dans un ordre naturel*. An v. pp. xii + 201, 12°, Brive. (*Curios* (sic): p. 177.)
- (1804), *Histoire naturelle, générale et particulière, des crustacés et des insectes*. An xii., viii. pp. 411, 8°, Paris. (*Curis*: p. 55.)
- (1806), *Genera crustaceorum et insectorum*, I. pp. xviii + 302, Tab. i-xvi. (*Curis*: p. 161.)
- (1829), Crustacés, arachnides et partie des insectes. *Cuvier's Le règne animal*, Paris, iv. pp. 584, 8°. (See *Ixodes*, pp. 287-290.)
- (1835), Ueber *Caris vespertilionis*. *Isis* von Oken, Jena (6), pp. 511, 512.
- Lavarra, L. (1905)**, Sopra una nuova specie di *Haemaphysalis* (*aculeata*). *Boll. Soc. Zool. Ital.*, (2), v. 255-258.
- (1905), Note sugli organi digerenti e genitali degli Ixodini. *Boll. Soc. Zool. Ital.*, (2), vi. 150.
- (1906), Sugli organi digerenti e genitali degli Ixodidi. *Boll. Soc. Zool. Ital.*, vii. 148-154.
- Laveran, A. (17. I. 1903)**, Au sujet du rôle des Tiques dans la propagation des Piroplasmoses. *C. R. Soc. Biologie*, LIV. 61-63.
- Laveran, A., and Nègre (10. VI. 1905)**, Sur un protozoaire parasite de *Hyalomma aegyptium*. *Compt. Rend. Soc. Biol.*, LVIII. 964, 1 Fig., reprint.
- Laveran, A., and Vallée (1905)**, Sur un cas de transmission par des *Ixodes* de la spirillose et de la piroplasmose bovines. *C. R. Acad. Sci.*, CXL. 1515-1517. (*Boophilus decoloratus* transmitting *Spirochaeta theileri*.)
- Leach, W. E. (1815)**, A tabular view of the external characters of four classes of animals, which Linné arranged under Insecta; with the distribution of the genera composing three of these classes into orders, etc., and descriptions of several new genera and species. (Read April-June, 1814.) *Trans. of the Linnaean Society*, London, xi. 306-400. (Ixodoidea: pp. 396-399.)
- (1824), *Isis*, p. 11. (Cit. Neumann, 1899, p. 157 re *I. plumbeus* Leach.)
- Lebedinsky, J. (1900)**, Zur Höhlenfauna der Krym (Russian, only this sub-title in German), *Mem. New Russia Soc. Naturalists*, Odessa, xxiii. 47-64, Pl.-Figs. 1-22. Russian, reprint. (Pp. 57, 63 and Fig. 14 relate to "*Ixodes erinacei*," said to differ from *I. ricinus* in that coxa I bears no spine. It is probably *I. hexagonus*, but the figure is unrecognizable and there is no description.)
- (? 1902), Zur Höhlenfauna der Krym (Russian, only this sub-title in German). *Mem. New Russia Soc. Naturalists*, Odessa, xxv. 75-88, Pls. I-II, Figs. 1-47. Russian, reprint undated. (P. 81: lists *Eschatocephalus seidlitzii* L. Koch and figures its tarsus on Pl. II, Fig. 31; *Esch. frauenfeldi* L. Koch and figures its

tarsus on Pl. II, Fig. 32; *Ixodes obliquus* C. L. Koch, dorsum and venter shown in Pl. II, Figs. 33-33a (poor; may depict *I. respertilionis* ♀). The foregoing ticks found near Kizilkoba, Crimea. P. 84 lists *Hyalomma rufipes* C. L. Koch; figured in Pl. II, Figs. 43, 43a, a very bad figure of ♂ *Hyalomma*, possibly *aegyptium*; found in cave at Iograph on top of Yaila above Yalta, Crimea. All of these ticks found in caves; there is no mention of hosts.)

Legendre (1858), Pustula maligna durch Stich eines Holzbocks. *Tod. Gaz. de Paris*, III. (Refer. *Schmidt's Jahrb.*, Vol. cv. (Cit. Huber, bibl., 1910, p. 24.))

Leidy, J. (IX. 1890), Remarks on Ticks. *Proc. Acad. Nat. Sci. Philadelphia*, 1890, pp. 281-282. Reprinted (1904) in *Smithsonian Misc. Collections*, Vol. XLVI, and as a part (No. 1477), being the author's collected papers. (See pp. 227-229 re Ticks.)

Leuckart, see **Frey**.

Lewis, L. L. (1897), Texas fever. *Bull. No. 27, Oklahoma Agric. Exp. Sta.*, pp. 8-15, map. (S. and S. bibl.)

— (1899), Texas fever. *Bull. No. 39, Oklahoma Agric. Exp. Sta.*, pp. 1-28, Figs. 1-5. (S. and H. bibl.)

— (1900), Means of preventing Texas fever. *Oklahoma Agric. Exp. Sta. Report*, pp. 26-28. (H. and H. bibl.)

Lewis, R. T. (1892 b), Note on a species of *Ixodes* found upon a South African lizard. *Journ. Quekett Microsc. Club*, London, s. 2, v. 10-14, Pl. I. (*Ixodes varani* Lewis, 1892 = *Aponomma exornatum* (Koch).)

— (1892), Note on the process of oviposition as observed in a species of cattle tick. *Journ. Roy. Microsc. Soc.*, pp. 449-454, Pl. VII, Figs. 1-8, also pp. 574, 575.

— (1898-1900), Notes on some Australian ticks received from Mr C. J. Pound. *Journ. Quekett Microsc. Club*, London, s. 2, VII. 222-228, also *Am. Month. Micr. Journ.*, Washington (1900), XXI. 123-127, 1 Pl.

— (1900), A contribution to the life-history of *Ixodes reduvius* (Linn.). *Journ. Quekett Microsc. Club*, London, s. 2, VII. 381-386, Pl. XXI, Figs. 1-5.

— (read 21. VI. 1901), A further note on *Ixodes reduvius* (Linn.). *Journ. Quekett Microsc. Club*, London (Nov. 1901), repr. pp. 153, 154.

Leydig, F. (1855), Zum feineren Bau der Arthropoden. (Müller's) *Arch. f. Anat., Physiol. u. wiss. Med.*, Jahrg. 1855, pp. 376-480, Pls. XV-XVIII.

— (1857), *Lehrbuch der Histologie des Menschen und der Thiere*, pp. xii+551, 271 Figs. Hamm: Grote'sche Buchhandlung (C. Müller).

Lichtenheld, G. (1908), Ergebnisse der von R. Koch ausgeführten und vorgezeichneten Forschungen über das Küstenfieber der Rinder in Deutsch-Ostafrika *Zeitschr. f. Hyg.*, LXI. 261-272, Pl. IX, 1 Map.

Lignières, J. (1900), *La "Tristeza" ou malaria bovine dans la république Argentine*, pp. 172, 16 Plates, 8°, Buenos Aires.

— (1901), Experimental transmission of bovine Malaria, 39 pp., 11 Plates, 4 Charts, 1 Map. (Translated by A. J. Boyd.) *Queensland Agric. Journ.*, Vol. IX., Part II. Brisbane: G. A. Vaughan, Acting Gov't Printer.

— (1901), Sur la "Tristeza." *C. R. 13e Congr. intern. Med.*, III. Sect. Bact. Parasit., 108-116, 2 Figs. [Transmission by Ticks.]

- Linnaeus, C. (1746)**, *Fauna Suecica sistens Animalia Sueciae Regni: quadrupedia, aves, amphibia, pisces, insecta, vermes, distributa per classes et ordines, genera et species*, etc., pp. 411, Tab. I-II, 12°, Lugduni Batavorum.
- (1758), *Systema Naturae. Regnum Animale*, ed. 10, pp. 824, Holmiae. (*Acarus*, vide pp. 615-618.)
- (1760), *Systema Nat.*, etc., I, Hal. Magdeb. Praef. J. J. Langius. (S. and S. bibl.)
- (1761), *Fauna Suecica sistens Animalia Sueciae Regni: mammalia, aves, amphibia, pisces, insecta, vermes, distributa per classes et ordines, genera, et species*, etc., ed. 2, pp. 578, Tab. I-II, 12°, Stockholmiae. (S. and S. bibl.)
- Linstow, O. von (1894)**, *Die Giftthiere und ihre Wirkung auf den Menschen*, 148 pp., 54 Figs. Berlin: Aug. Hirschwald. (Brief reference to Ticks (*Argas*), pp. 120-121.)
- Lintner, J. A. ("J. A. L.") (1874)**, The cattle tick. *Cultivator and Country Gentleman*, Albany, XXXIX., p. 631. (S. and S. bibl.)
- Livingstone, D. (1857)**, *Missionary Travels and Researches in South Africa*, etc., 711 pp. (Ticks: pp. 382, 383, 628, 629.) London: John Murray.
- (1874), *The last Journals of David Livingstone, in Central Africa, from 1865 to his death, continued by a narrative of his last moments*, etc., by H. Waller. 2 vols., 360+346 pp. (Ticks: vol. II. pp. 33, 115.) London: J. Murray.
- Losado, F. (1890)**, Ixodismo (efectos que produce en el hombre la mordedura del ixodo común ó garrapata de los perros). *Correo Méd. Castellano*, Salamanca, VII. 193; 225. (Inaccessible.)
- Lounsbury, C. P. (1895)**, Fowl ticks (letter from T. W. Parker answered by C. P. L.). *Agric. Journ.*, Cape Town, VIII. (25), pp. 657, 658. (*Argas persicus*.)
- (IX. 1899), Tampans or fowl ticks (*Argas reflexus*?). *Agric. Journ.*, Cape Town, xv. (6), 421-422, Figs. a-b.
- (23. XI. 1899), The bont tick. *Amblyomma hebraeum* Koch. Its life-history and habits. *Agric. Journ.*, Cape Town, xv. 728-743, 1 Fig., reprint 16 pp.
- (1899a), Pig lice, alias Tampans. *Ibid.* xv. (4), Feb. 16, p. 240. (Tampans = *Ornithodoros*.)
- (1899b), Ticks. *Report of the Gov't Entomologist for the year 1898. Cape of Good Hope Dep't of Agric.*, Cape Town, 1899, pp. 43-46, Pl. IX.
- (1900), Tick Investigations. *Report of the Gov't Entomologist for the year 1899. Cape of Good Hope Dep't of Agriculture*, Cape Town, 1900, pp. 19-34, Plates III-IV. (Heartwater and Redwater infection experiments with *Amblyomma hebraeum*, with notes on biology of this and other species: *Hyal. aegyptium*, *Rhip. evertsi*, *Boo. decoloratus*, *Rhip. cupensis*, *Ambl. derivum*, *Orn. savignyi*, *Argas persicus*.)
- (V. 1900), Tick-heartwater experiment. *Agric. Journ.*, Cape Town, XVI. (11), 682-687, 3 Charts.
- (1900a), Notes on some South African Ticks. *Proc. 12th Ann. Meeting of the Assoc. of Econ. Entomologists. Issued by U. S. Dep't of Agric., Division of Entomology. Bulletin No. 26*, n.s. Washington, pp. 41-48. (*Amblyomma hebraeum*, *Hyal. aegyptium*, *Boo. decoloratus*, *Rhip. evertsi*, *Orn. savignyi*, *Arg. persicus*.)
- (1900b), Insect bites and the effects thereof. *Canadian Entomologist*, XXXII. 17-24. (Bites of ticks, not insects. *Argas*, *Orn. savignyi* or tampan.)

- Lounsbury, C. P. (1900 c), Tick-Heartwater experiment. *Report of the Gov't Entomologist for the year 1900. Cape of Good Hope Dept of Agriculture*, Cape Town, 1901, pp. 12-22.
- (1900 d), Life-History of a Tick. *Entomol. News*, Philadelphia, xi. 336-340. (*Amblyomma hebraeum*.)
- (21. XI. 1901), Transmission of malignant jaundice of the dog by a species of tick. *Agric. Journ.*, Cape Town, xix. 714-724; 10 pp., reprint. (*Haemaphysalis leachi*.)
- (1902), (Tick investigations) Tampan not associated with heartwater (p. 65)—Tick-Heartwater investigations (pp. 2-4, 29-74)—Tick Malignant Jaundice investigations (pp. 4-9)—Tick, catching and destruction (pp. 3, 4, 49, 71), Pls. IV-VI. *Report of the Gov't Entomologist for the year 1901, Cape of Good Hope Dept of Agric.* Cape Town, 1902. (Tampan = *Ornithodoros*.)
- (II. 1902), Transmission of malignant jaundice of the dog by a species of tick. *Veterinarian*, London (890), LXXV., 4 s. (566), XLVIII. 86-95. (Same as Lounsbury, 1901.)
- (VIII. 1902), Heartwater in calves. *Agric. Journ.*, Cape Town, xxi. 165-169; reprint, 7 pp.
- (X. 1902), The plague of Ticks; their destruction by oil spraying; Eastern Province experiments. *Ibid.* xxi. 337-345, 4 Figs.; reprint, 11 pp. 4 Figs.
- (XI. 1902), The plague of Ticks. Oil-water pumps etc. (for tick extermination). *Ibid.* xxi. 427-434, 6 Figs.; reprint, 12 pp., 6 Figs.
- (1903), 1. Ticks and Rhodesian Cattle disease, pp. 16-18. 2. Ticks and Malignant Jaundice, pp. 18-20. 3. Ticks and Heartwater, pp. 20-41. *Report of the Gov't Entomologist for the year 1902. Cape of Good Hope, Dept of Agriculture*, Cape Town, 1903.
- (VII. 1903), A note on tick investigation. *Transvaal Agric. Journ.*, 1. (4), 11-12. (*Rhipicephalus shipleyi* Nn., validity of species discussed, also *R. simus*.)
- (IX. 1903), The fowl tick. Studies on its life-cycle and habits. *Agric. Journ.*, Cape Town, xxiii. 261-273, 3 Pls., repr.
- (X. 1903), Ticks and African Coast fever. *Transvaal Agricult. Journ.*, ii. 4-8.
- (1904), 1. Ticks and African Coast Fever, pp. 11-15. 2. Ticks and Heartwater, pp. 15-21. 3. Ticks and Malignant Jaundice, pp. 22-43. Charts etc. *Report of the Gov't Entomologist for the year 1903. Cape of Good Hope, Dept of Agric.*, Cape Town, 1904.
- (1904), Ticks and malignant jaundice of the dog. *Journ. of Compar. Pathol. and Therap.*, xvii., 113-129.
- (1904), Distribution of Coast Fever Ticks. *Agric. Journ.*, Cape Town, xxv. 268-270. 1 Map.
- (IV. 1904), Transmission of African Coast fever. *Ibid.* xxiv. 428-432, 7 pp., 2 Pls., reprint.
- (VIII. 1904), Persian sheep and heartwater. *Ibid.* xxv. 175-186, 3 Figs.; 12 pp., repr. (*Ambl. hebraeum*.)
- (XI. 1904), External parasites of fowls. *Agric. Journ.*, Cape Town. No. 27, Repr., 5 pp., 4 Figs. (Includes a short account of *Argas persicus*; more fully treated in Lounsbury (ix. 1903).)

- Lounsbury, C. P.** (XI. 1904), Supposed ticks on a fly. *Agric. Journ.*, Cape Town, xxv. (5), 602. (Reply to letter from A. Kirkland Soga.)
- (1905 a), *Report of the Government Entomologist for the half-year ended June 30th, 1904. Cape of Good Hope*, Dep't of Agric. Cape Town: Cape Times Ltd. 35 pp., 1 col. pl. (*Rhipicephalus appendiculatus*).
- (1905), Habits and peculiarities of some South African Ticks. *British Association for the Adv. Sci., Section D*, South Africa, 10 pp., repr.
- (14. II. 1905), *Report of the Government Entomologist for the year 1904. Cape of Good Hope*, Dep't of Agriculture, pp. 95-104.
- (III. 1905), Tests of substances for tick destruction. *Agric. Journ.*, Cape Town, xxvi. 387-395.
- (III. 1905), Cattle dips and their value as destroyers of ticks. (Editorial.) *Agric. Journ.*, Cape Town, xxvi. (3), 320-321.
- (1906), *Report of the Government Entomologist for the half-year ended 31st December, 1905. Cape of Good Hope*, Dep't of Agriculture, 12 pp., repr.
- (1906), Habits and peculiarities of some South African Ticks. *Report 75th Meeting Brit. Assoc. for the Adv. Sci.*, p. 282.
- (1906), Ticks and African Coast Fever. *Agric. Journ.*, Cape Town, xxviii. 634-643.
- (IX. 1908), The Seabury cattle spraying machine. *Agric. Journ.*, Cape Town, reprint 7 pp., 1 Fig.
- (1908), *Report of the Government Entomologist for the year 1908. Appendix IV.* (P. 63, brief mention of ticks and heartwater; p. 65, experiments with a supposedly destructive tick parasite, *Hunteralis hookeri*, brought from the United States, where it is being tried.)
- Louping-ill and Braxy Committee** (1905), *Report of the Departmental Committee appointed by the Board of Agriculture to inquire into the aetiology, pathology, and morbid anatomy etc. of Louping-ill and Braxy.* Parts I-III. London: Darling and Son Ltd. (Nothing worth noting.)
- Lucas, H.** (1835-36), *Descriptions et figures d'espèces nouvelles d'Arachnides.* Paris. (Title cited by Riley, 1888.)
- (1836), Quelques observations sur la manière de pondre chez les *Ixodes* etc. *Ann. Soc. Entomol. de France*, s. 2, v. 269-633, also abstract in *Institut*, Paris, v. 1 sect., p. 140 (1837).
- (1840), Arachnides, in *Histoire des Canaries*, par Webb et Berthelot, pp. 47, 48, Pl. VII, Fig. 9-12. (Cited from Gervais, by Neumann.)
- (1844), *Revue cuviérienne de Guérin.* (Re *Aponomma transversale* (Lucas), cited by Neumann.)
- (1845), Notice sur quelques espèces nouvelles d'Ixodes. *Ann. Soc. Entomol. de France*, s. 2, iv. p. 61, Pl. I, Fig. 3 (*Aponomma transversale* (Lucas), p. 63, Pl. I, Fig. 2 (*Ixodes exilipes* Lucas). Cited by Neumann, 1899, p. 158).
- (1845), Notice sur quelques espèces d'*Ixodes* qui vivent parasites sur les Serpents et sur l'Ornithorhynque. *Ann. Soc. Entomol. de France*, s. 2, iv. p. 58, Pl. I, Fig. 3 (*Ixodes ornithorhynchi* Lucas).
- (1846), Notice sur quelques espèces nouvelles d'Ixodes qui vivent parasites sur les Serpents (*Boa constrictor* et *Python sebae*) et sur l'Ornithorhynque (*Ornithorhynchus paradoxus* Blum.). *Ann. Soc. Entomol. de France*, s. 2, iv. 53-64, Pl. I (*I. flavomaculatus* Lucas = *Aponomma exornatum* Koch, etc.).

Bibliography of the Ixodoidea LUC-MAC

- Lucas, H.** (1847), *Ixodes gervaisi* et *fusco-lineatus* nn. spp. *Ann. de la Société Entomologique de France*, v. *Bull.* pp. xcix-ci. (Page c, abstract: *I. fusco-lineatus*.)
- (1849), *Exploration scientifique de l'Algérie*. Zoologie I. Histoire naturelle des Animaux articulés, Part I, pp. 316, 317.
- (1849), [*Ixodes pulchellus*]. [Secretary's abstr. of paper read Oct. 10th.] *Ann. Soc. Entomol. de France, Paris*, 2 s., vii. *Bull.*, pp. lxxx-lxxxi.
- (14. VIII. 1850), *Ann. Soc. Entomol. de France*, 2 ser., vol. VIII. *Bull.* p. xli. (*I. poortmani* Lucas = *Amblyomma hebraeum* Koch.)
- (1851), [Description de la femelle de l'*Ixodes flavo-maculatus*]. [Secretary's abstr. of paper presented Dec. 24th.] *Ann. Soc. Entomol. de France, Paris*, 2 s., ix. *Bull.*, pp. cxx-cxxi.
- (1852), [*Ixodes variegatus* n.sp.]. [Secretary's abstr. of paper read Dec. 22nd.] *Ann. Soc. Entomol. de France, Paris*, 2 s., x. *Bull.*, pp. lxxxviii-lxxxix.
- (1860), Diagnose d'une nouvelle espèce d'Ixode. *Ann. Soc. Entomol. de France* (3), viii. 538. (*Aponomma globulus* (Lucas) Neumann.)
- (1861), Note sur une nouvelle espèce du genre *Ixodes*. *Ann. Soc. Entomol. de France*, 4 s., i. 225-226. (*Aponomma trachysauri* (Lucas) Neumann.)
- (1866), Note sur l'*Ixodes pustularum* sp. nov. *Ann. Soc. Entomol. de France*, 4 s., vi. *Bull.* p. lvii. (= *Ixodes ricinus*.)
- (1867), Note sur l'*Ixodes flavo-maculatus* mâle et sur la manière anormale de vivre de l'*Ixodes gervaisi*. *Bull. Soc. Entomol. de France*, p. lxxii. (Cit. Neumann.)
- (1872), [*Ixodes longipes* sp. nov.]. *Ann. Soc. Entomol. de France*, 5 s., ii. *Bull.*, pp. lxxiv-lxxv. (*Ixodes vespertilionis* Koch.)
- (1873), [*Ixodes aegyptius* xxxii, *flavo-maculatus*, Arach., esp. nouv.]. *Ann. Soc. Entomol. de France*, 5 s., iii. *Bull.*, pp. xxxi-xxxii. (*Ixodes aegyptius* L. found on *Testudo mauritanica* = *Hyalomma syriacum*?)
- (27. II. 1878), *Bull. Soc. Entomol. de France*, 5 s., viii. p. xxxv. (*Ixodes acanthoglossi* Lucas and *Ixodes trimaculatus* Lucas.)
- (8. v. 1878), *Ixodes trimaculatus* n.sp. *Bull. Soc. Entomol. de France*, 5 s., viii. pp. lxxvii-lxxviii.
- Ludwig, H.** (1886), Leunis' *Synopsis der Thierkunde*, 3. Aufl. ii. pp. xvi+1231, Figs. 1160, Hanover. (S. and S. bibl.)
- Lugger, O.** (1896), Insects injurious in 1896. *Bull. No. 48, Minn. Agric. Exp. Sta., Ent.*, pp. 31-270, Figs. 189. (S. and S. bibl.)
- Lühe, M.** see **Braun**.
- Lyonnet** (1829), Recherches sur l'anatomie et les métamorphoses de différentes espèces d'Insectes. *Mém. du Mus. d'Hist. Nat.*, xviii. 288 et seq., Pl. VI (XIV), Figs. 1-8. (From citation in Pagenstecher, 1861, p. 10, it is clear that this author fell into various errors. Also cited by Audouin, 1832, and Gené, 1844.)
- Macalister, A.** (1871), On some species of Parasites hitherto undescribed. *Quart. Journ. Microsc. Sci.* (n. s.), xi. 163. (*Ixodes phascolomys* Macalister, a nominal species.)

Bibliography of the Ixodoidea MAC-MAR

- Macalister, A.** (1872), Description of a new Genus of Ixodea (*Adenopleura*). *Quart. Journ. Microsc. Sci.* (n. s.), xii. p. 287, Pl. XIV, Figs. 5-8. (Fig. copied in Murray, 1877, p. 200; nonsensical description.)
- MacKellar, W. M., and Hart, G. H.** (1911), Eradicating cattle ticks in California. *U. S. Dep't Agric., 26th Ann. Rep. Bur. Animal Industry for the year 1909*, pp. 283-300, Pl. XV, Text-Figs. 7-10. (Eradication of *Boophilus*, the figures relate to dipping vats etc.)
- MacLeod, J.** (1884 a), La structure de l'intestin antérieur des arachnides (prel. note). *Bull. Acad. Belgique, Année LIII., 3 sér., VIII.* 377-396. Figures. [Brief notes re sucking apparatus of *Argas*.]
- (1884 b), Recherches sur la structure et la signification de l'appareil respiratoire des Arachnides. *Arch. d. Biol.*, v. (Cited by Samson, 1909, p. 233.)
- Mally, C. W.** (ix. 1904), Notes on the so-called Paralysis Tick, *Ixodes pilosus*. *Agric. Journ.*, Cape Town, xxv. 291-296, repr. 8 pp., no figs.
- Manson, P.** (1903), *Tropical Diseases. A Manual of the Diseases of Warm Climates.* 3rd ed. Cassell and Co., London, 756 pp. (Re *Ornithodoros moubata* see pp. 713, 714.)
- (1908), *Tropical Diseases. A Manual of Diseases of Warm Climates.* London: Cassell and Co., Ltd., 876 pp. (Ticks described, pp. 202-205 and figured on coloured Pl. IV: *Boophilus* (? *annulatus*) ♀, *Ixodes ricinus* ♀ [both gorged], *Orn. moubata*, *A. persicus*, all in dorsal aspect.)
- Manteufel, P.** (1909), Ueber den gegenwärtigen Stand unserer Kenntnis von der Bedeutung der Arthropoden als Ueberträger von Infektionskrankheiten bei Wirbelthieren. *Zoolog. Zentralbl.*, xvi. Nr. 2/3, pp. 41-81. (Arachnoidea, pp. 52-63, a review of the literature on disease-transmission by ticks etc.)
- see Schuberg.
- Marchoux, E.** see Borrel.
- Marchoux, E., and Salimbeni, A.** (ix. 1903), La Spirillose des Poules. *Ann. de l'Inst. Pasteur*, xvii. 569-580, repr.
- Marescaux, O.** (1903), How to get rid of ticks on cattle. [Abstr. from *Proc. Jamaica Agric. Soc.*, Feb. 21st.] *Agric. News, Barbados* (24), ii., Mar. 14th, p. 88.
- Mariano, M.** (1902), Di una nuova specie di acaro dell'ordine dei Metastigmata, gen. *Argas* (*Argas andresi* n. sp.). 6 pp. Camerino.
- (1904), Idem (?). *Zool. Anz., Leipzig*, xxvii. (22), June 28th, 704-706. [MS. dated June, 1902.]
- Marlatt, C. L.** (11. viii. 1899), A Californian Tick. *Canadian Entomologist*, p. 229, repr. (*Argas*? found in Santa Lucia Mts.)
- Marotel, G.** (1906), Le rôle des tiques dans la propagation des piropasmoses et des spirochètoses. État actuel de la question. *Journ. de méd. vét. et zootech.*, Lyon, June 30th, pp. 349-362, Figs. 1-5.
- Martin, J.** (1895), Sur une nouvelle espèce d'Ixodidae du Congo, *Amblyomma quantini*. *Ann. d. sci. nat., Paris, Zool.* (1894), 7 s., xviii. 267-278, Pl. XIV, Figs. 1-11. (= *Amb. splendidum* Giebel.)
- Martini, E.** (1904), Insekten als Krankheitsüberträger. *Moderne ärztliche Bibliothek*, Heft 11, 25 Figs., 39 pp. Berlin: Leonhard Simion Nf. [A brief review, contains nothing original about ticks; the latter mentioned on pp. 31-35.]

Bibliography of the Ixodoidea MAR-MAY

- Martini, E.** (1907), Ueber die Rinderzecken Schantungs und ihre Beziehungen zu den dortigen Piroplasmosen. *Arch. f. Schiffs- u. Tropen-Hyg.*, xi. 740-743. (Found *Piroplasma bovis* and *Theileria parva* in cattle, *P. canis* in dogs. *Booph. annulatus*, *Hyal. aegyptium*, *Haem. neumanni* found on cattle.)
- Martiny** (1854), *Naturgeschichte der für die Heilkunde wichtigen Thiere*. (P. 436, Zecken, Fam. Ixodidae, including 2 genera: *Argas* and *Ixodes*. Cit. Pagenstecher, 1861, p. 15.)
- Martius**, see **Spix**.
- Marx, G.** (1892a), Notes on the Classification of the Ixodidae. *Proc. Entomol. Soc. Washington*, ii. 232-236. (Cynorhoestea proposed as a Sub-order of Acarina to include all ticks (Argasidae, Ixodidae, Eschatocephalidae, Haemalastoridae, Rhipistomidae) under 2 groups: Catastomata, Antistomata.)
- (1892b), On the morphology of the ticks. *Proc. Entomol. Soc. Washington*, ii. 271-287. (Historical sketch re Antistomata; larvae, adults, detailed morphology.)
- (1894 and 1895), (*Amblyomma tuberculatum*, n.sp.). *Insect Life*, vi. No. 4.
- (1895), Obituary Notice of his Work. Plate illustrating following species published in connection with obituary, *Proc. Ent. Soc. Wash.*, vol. iii. pp. 195-201: *Rhynchoprion spinosum* (= *Ornithodoros megnini*, nymph), *Ornithodoros americanus* (= *O. megnini*, adult), *Argas americanus*.
- Marzinowski, E. J., and Bielitzer, A. W.** (1909), Piroplasmose des Pferdes in Russland und die Rolle der Zecke *Dermacentor reticulatus* bei ihrer Verbreitung. *Zeitschr. f. Hyg. u. Infektionskr.*, LXIII, pp. 17-33, Pls. II-VII repr. (Pls. II-III of *D. reticulatus*, egg, larva, ♂ and ♀, very poor.)
- Maskell, W. M.** (1885), On a parasite of the penguin. *Trans. and Proc. New Zealand Institute*, 1884 (issued V. 1885), xvii. 19-20, Pl. VIII, Figs. 12-14. (*Ixodes eudyptidis* Maskell.)
- (20. I. 1897), On some tick-parasites of the Kiwi [*Apteryx mantelli*, *Apt. australis*]. *Trans. and Proc. New Zealand Institute*, xxix. 290-293, Pl. XVII. (*Ixodes apteritidis* and *Ixodes aptericola* Maskell.)
- Massey, A. Y.** (1905), Spirillosis in Portuguese West Africa. *Journ. Trop. Med.*, viii. 225. (Describes a case of spirochaetosis in man.)
- Mauldin, C. E.** see **Newell**.
- Mayer, A.** (1904), The Cattle Tick problem. [Letter to the editor.] *Breeder's Gaz.*, Chicago, XLVI, p. 129.
- (1905), Total eradication of the fever-transmitting tick from the pastures of the South. [Letter dated Apr. 20th, in Morgan, H. A. (1905).] *Bull. Agric. Exper. Sta., Univ. Tennessee*, Knoxville, xviii. p. 10.
- (1906), The cattle tick in its relation to southern agriculture. *U. S. Dep't Agric., Farmers' Bull.*, No. 261, pp. 1-22, reprint. (Essay of a general character.)
- Mayer, M.** see **Fülleborn**.
- Mayo, N. S.** (1897), Texas fever. *Bull. No. 69, Kansas Agric. Exp. Sta.*, pp. 124-134. (Cited in bibl. by Salmon and Stiles 1901; stated by Hooker 1908 b to have published a paper "Some diseases of cattle" *Ibid.* in which he confirmed the observation by Morgan (1899, p. 134) that *Amblyomma americanum* does not convey piroplasmosis.)

- McCulloch, C.** (1899), The prevention of Texas cattle fever and the amended laws controlling contagious and infectious diseases. *Virginia Agr. Exp. Sta., Bull.* 104, pp. 167-180, 1 pl. (H. and H. bibl.)
- McFarland, J.** (1910), *Biology: General and Medical*. Philadelphia and London: W. B. Saunders Co. 440 pp., 160 Figs. (Pp. 317-320 brief reference to ticks; Fig. 113 of *Orn. moubata*, very bad. Nothing original.)
- Meaden, C. W.** (1893), Ticks on an Iguana. *Trinidad Field Club*, I. 222.
- Meek, A.** (1897), On Louping-ill and its connection with the Tick. *Veterinarian*, LXX. 698-709.
- Meek and Greig-Smith (v. 1897)**, (Regarding ticks and louping-ill in sheep). *Veterinarian* (cit. Nuttall, 1899, p. 42).
- Mégnin, P.** (1867), Note sur un nouvel Ixode, parasite du Cheval. *L'Insectologie agricole*, I. 107, Pl. IV. (*Ixodes pustularum*; translation of this in Murray, 1877, p. 191.)
- (1. 1868), La famille des Ixodés. *Journ. de méd. vétér. milit.*, VI. 423.
- (1876), Présentation d'un parasite colossal de l'ordre des Acariens et du genre *Ixodes*. *Bull. de la Soc. centr. de méd. vétér. Rec. de méd. vétér.*, III. 831. (*Ixodes africanus* Mégnin = *Hyalomma aegyptium* (Linn.). Cit. Neumann.)
- (1876a), Mémoire sur l'organisation et la distribution zoologique des acariens de la Famille des Gamasidés. *Journ. de l'Anat. et de la Physiol.*, Paris, XII, May-June, pp. 288-336, Pls. VII, VIII.
- (1876b), Présentation d'œufs pondus par l'ixode recueilli sur un bœuf d'Afrique. *Rec. de méd. vét.*, Paris, Aug. 30th, p. 985.
- (1876c), Note sur la faculté qu'ont certains acariens avec ou sans bouche de vivre sans nourriture pendant des phases entières de leur existence et même pendant toute leur vie. *Journ. d'Anat. et de Physiol.*, XII. 603-606. [Nymphal forms of *Ixodidae*, etc., "without mouths" live on stored nutriment.]
- (1878), Présentation d'*Ixodes* recueillis sur des bœufs algériens et marocains. *Bull. Soc. Entomol. France*, 5 s., VIII, pp. xci, xcii. (Copulation etc.)
- (1880a), *Les Parasites et les Maladies Parasitaires chez l'homme, les animaux domestiques et les animaux sauvages avec lesquels ils peuvent être en contact; insectes, arachnides, crustacés*, pp. 478, Figs. 65, Pls. XXVI, 8°, Paris. (Ticks: pp. 106-136, 322, 344, 363, 403, 422.)
- (1882), Expérience sur l'action nocive des *Argas* de Perse. *Compt. rend. Soc. de Biol.*, Paris, Sér. 7, IV. 305-307.
- (1885), Les *Argas* du Mexique. *Journ. de l'Anat. et de la Physiol.*, Paris, XXI, 460-474, Pls. XX, XXI, Figs. 1-10.
- (1888), Ixodiden. *Encycl. d. ges. Thierh. u. Thierzucht* (Koch), Wien u. Leipzig, V. 198-200, Figs. 902-903.
- (1892), *Les Acariens Parasites*. (*Encyclopédie Scientifique des Aide-mémoire.*) Paris: Gauthier-Villars et Fils. 40 Figs., 182 pp., 12°. (See pp. 25-67: Chapter II, "Famille des Ixodidés.")
- (1895a), *Les parasites articulés chez l'homme et les animaux utiles (maladies qu'ils occasionnent)*. 2. éd. des parasites et maladies parasitaires, augmentée d'un appendice sur les parasites des cadavres. 2 vols., 1 p. I., 510 pp.; atlas, 1 p. I., 26 l., 26 pp., 8°. Paris: G. Masson. (Cit. *Index Catal. Surgeon General's Libr.*, Washington, vol. X. 1905.)

Bibliography of the Ixodoidea MEG-MEU

- Mégnin, P.** (15. X. 1895), Sur les prétendus rôles pathogéniques des Tiques ou Ixodes. *Bull. de l'Acad. de Méd.*, xxxiv. 354-369, Figs. A-J.
- (10. I. 1903), Du rôle des Tiques ou Ixodes dans la propagation des Piroplasmoses. *C. R. Soc. Biologie*, LV. 4-6, also (rev.) *Bull. Inst. Pasteur*, I. 35.
- (1903), Un dernier mot sur le rôle des Ixodes dans la propagation des piroplasmoses. *C. R. Soc. de Biol.*, LV. 147-148. [Discussion, p. 149.]
- (7. II. 1903), Encore un mot sur la biologie des Ixodes. *C. R. Soc. de Biol.*, LV., Feb. 13th, 175-176. [Discussion, p. 176.]
- (1904), Sur la biologie des tiques. *Journ. de l'Anat. et Physiol.*, XL. 569.
- see **Laboulbène**.
- Mégnin, P., and Laboulbène** (1882), Sur les *Argas* de Perse. *Compt. Rendus Soc. Biol.*, Paris, Sér. 7, IV. p. 577. (See full paper under Laboulbène and Mégnin.)
- Meikle, J. (I. 1905)**, [Dipping cattle for ticks.] [Address before Farmers' Conference, Salisbury, Nov. 7th, 1904.] *Rhodesian Agric. Journ.*, Salisbury, Suppl., 12-13.
- Melvin, A. D.** (1905), Report of the Chief of the Bureau for the Fiscal Year ended June 30, 1905. *U. S. Dept. Agric.*, 22nd Annual Report of the Bureau of Animal Industry, Washington, D.C., pp. 9-48. (P. 16, regarding tick extermination, mention of *Boophilus annulatus* and *Rhipicephalus sanguineus*.)
- (1906), Report of the Chief of the Bureau for the Fiscal Year ended June 30, 1906. *U. S. Dept. Agric.*, 23rd Annual Report of the Bureau of Animal Industry, Washington, D.C., pp. 9-63. (See pp. 23, 28, 46 regarding tick eradication; also later parts of the report, viz. pp. 101-112; also pp. 339-346 regarding quarantine regulations against Texas Fever.)
- (1906 a), How to get rid of cattle ticks. *U. S. Dept. Agric.*, Bur. Animal Industry, circular 97, pp. 1-4, 1 Pl. ("Deals with the hand-picking and greasing, the tie-rope or picketing, and the two-field methods." Cit. H. and H. bibl.)
- (1907), Report of the Chief of the Bureau for the Fiscal Year ended June 30, 1907. *U. S. Dept. of Agric.*, 24th Annual Report of the Bureau of Animal Industry, Washington, D.C., pp. 9-84. (See pp. 10, 15, 23-25, 56 regarding cattle tick eradication and quarantine measures; also pp. 421, 424, 433, 451, 452, 458, 462, 463 regarding regulations against Texas Fever.)
- (1908), Report of the Chief of the Bureau for the Fiscal Year ended June 30, 1908. *U. S. Dept. of Agric.*, 25th Annual Report of the Bureau of Animal Industry, Washington, D.C., pp. 9-81. (States p. 12 that during less than 3 years 64,000 square miles of land in the Southern States have been cleared of cattle ticks. See further pp. 22, 48, 53 also in relation to Texas Fever. Pp. 434, 462 regulations against Texas Fever.)
- Merriman, G.** see **Nuttall**.
- Messenger, E. H.** (1904), Poultry ticks. *Queensland Agric. Journ.*, Brisbane, XI. (2), Aug. 1st, p. 114.
- Meuleman, E. (VIII-IX. 1908)**, Le rôle des ixodes dans la propagation des maladies contagieuses. *Ann. de Méd. Vétérin.* (Bruxelles), reprint 22 pp. (Causerie faite à la Soc. de Méd. Vétérin. du Brabant le 10 mai 1908.) (Nothing original.)
- (1908), Le rôle des ixodes etc. *Ann. Soc. zool. malacol. Belgique*, XLIII. 149-166.

Bibliography of the Ixodoidea MEZ-MON

- Mezincescu, D., and Calinescu, J.** (1909), Spirillose des poules et *Argas persicus* en Roumanie. *Bull. Soc. Path. Exot.*, Paris, II. 292.
- Michael, A. D.** (1883), *British Oribatidae*, Vol. I., p. 5. (Mentions Ixodidae incidentally; quoted regarding classification. Vol. II. published 1887. London: Royal Society.)
- (1892), [Discussion on Lewis's paper before the Royal Micr. Soc.]. *Journ. R. Microsc. Soc.*, 1892, p. 446.
- (v. 1892), Ticks. *Natural Science* [London and New York], I. 200-204, 3 Text-Figs. (Figs., after Canestrini and Pagenstecher, poorly reproduced.)
- (1903), Remarks upon specimens of ticks of the genus *Ixodes*. [Secretary's abstr. of paper read Feb. 28th.] *Proc. Zool. Soc. London*, (12), p. 1771.
- Miessner**, see **Kossel**.
- Miller, W. McN.** (1895), Texas cattle fever. *Bull. No. 31, Nevada Agric. Exp. Sta.*, pp. 11. (S. and S. bibl.)
- Milne, A. D.** see **Ross**.
- Milne Edwards**, see **Dugès, A. L.**
- Milner, E.** (1858), *De animalibus animalium parasitis novoque eorum genere isopodorum ordini adscribendo*, In. Diss., pp. 30, Bonnæ. (S. and S. bibl.)
- Mingazzini** (1898), *Zoologia medica*, pp. 245-249. (*A. reflexus*, cit. Huber, 1899, p. 16.)
- Miyajima, K.** see **Shibayama**.
- Modder, E. E.** (1907), The transmission of yaws by ticks. *Journ. Trop. Med. and Hyg.*, (a) 1 June, p. 187, and (b) 15 Nov., p. 361. (Believes "*Ixodes bovis*" transmits yaws from diseased to healthy cattle. Ticks prevalent in native huts together with framboesia. Brings no proof whatever in support of the hypothesis. The second paper is perhaps as worthless as the first.)
- Möhler, J. R.** (1905), Texas Fever (otherwise known as Tick Fever, Splenetic Fever, or Southern Cattle Fever), with methods for its prevention. *U. S. Dep't Agric., Bureau Animal Industry*, Washington. Bulletin No. 78, 48 pp., 3 coloured plates (of ticks) and 3 Text-Figures. (Describes symptoms, pathology, treatment and methods of tick destruction. Pp. 13-15 brief description of *B. annulatus*, *D. reticulatus*, *D. electus*, *Amb. americanum*, *I. ricinus*, *I. hexagonus*, *Argas persicus (miniatus)*, *Orn. megnini*, all of which are figured in the coloured plates.)
- (1906 a), Texas or tick fever and its prevention. *U. S. Dep't Agric., Farmers' Bull.* No. 258, pp. 1-46, Figs. 1-6. (Condensed re-edition of the preceding. Cit. H. and H. bibliogr.)
- Möllers, B.** (XII. 1907), Experimentelle Studien über die Uebertragung des Rückfallfiebers durch Zecken. *Ztschr. f. Hyg. u. Infektionskr.*, LVIII. 277-286.
- Moniez, R.** (1896), *Traité de Parasitologie*, pp. 499-509. (Refers especially to *A. reflexus*, mentions other Argasidae; cited in Huber, bibl., 1899, Heft 2 and 1900, Heft 4.)
- (1896), *Traité de Parasitologie animale et végétale appliquée à la Médecine*. 8°, Paris, VIII. +680 pp. (Divides the family Ixodides into 2 genera: *Argas* and *Ixodes*, which he states (p. 488) have been sub-divided into several sub-genera. Ticks also mentioned on p. 496. Moniez contributes nothing to the subject and only confuses the nomenclature. We are indebted to Prof. Neumann for an abstract from the worthless original.)

- Montagu, G. (1808)**, An account of the larger and lesser species of horse-shoe bats etc. *Trans. Linnæan Soc., London*, ix. 162-173. (Original description of Acari on bats useless. Leach, *ibid.* 1815, xi. p. 399, says the Acari were *Ixodes pari* Leach 1815; there is nothing to prove this beyond Leach's statement.)
- Moore, F. W. J. (1895)**, Not scab in Australia but ticks. *Agric. Journ.*, Cape Town, viii. (15), July 25th, 380-381.
- Moquin-Tandon (1860)**, *Éléments de Zoologie médicale*. (Cited by older authors re ticks and in Huber's bibliography, 1900, Heft 4.)
- (1861), *Elements of Medical Zoology*, translated and edited by Robert Thomas Hulme, pp. 423, Figs. 124, London. (S. and S. bibl.)
- Morgan, H. A. (1894)**, Report of the Entomologist. *Bull. No. 28*, s. 2, *Louisiana Agric. Exp. Sta.*, pp. 982-1005, Figs. 1-8. (S. and S. bibl.)
- (1899a), Ticks and Texas Fever. *Bull. No. 56*, ser. 2, *Louisiana Agric. Exp. Sta.*, pp. 128-141, Pls. I-IX.
- (1903 a), How can we exterminate the cattle tick? *Proc. Louisiana State Agric. Soc. and Stockbreeders' Assn.*, 1903, pp. 77-79. ("Emphasizes the necessity for cooperation among the farmers." H. and H. bibliogr.)
- (1903 b), The cattle-tick situation. *Proc. Soc. Prom. Agr. Sci.*, 1903, pp. 72-74. (Notes are given on the life-history of the tick. H. and H. bibl.)
- (1905), The Texas Fever Cattle Tick Situation and the Eradication of the Tick by a Pasture Rotation System. *Bull. Agric. Exper. Sta., Louisiana State University and A. and M. College*, s. 2, No. 82, 1 Fig., 15 pp.
- (I. 1905), Texas fever cattle tick: Pasture methods of eradication. *Bull. Agric. Exper. Sta., Univ. Tennessee*, Knoxville, xviii. 10 pp., 3 Figs. [Letter from Mayer, A., p. 10.]
- (I. VI. 1906), Cattle tick extermination: Feed-lot and pasture rotation methods. *Press Bull. 23, Agric. Exper. Sta., Univ. Tennessee* [n.p.], [4] pp., 8 Figs., 1 Map.
- see Dalrymple.
- Mosler, F., and Peiper, E. (1894)**, *Thierische Parasiten*, 1st ed., in Nothnagel's *Specielle Pathol. u. Therapie*, vi. 345 pp., 124 Figs., 8°. Wien: Alfred Hölder. (Pp. 320-322 brief mention of ticks, nothing original, including two figures. See note to 2nd ed.)
- (1904), *Tierische Parasiten*, 2nd ed., 376 pp., 162 Figs. Wien: Alfred Hölder. (Brief reference to Ticks on pp. 344-346; one Fig. of *Argas reflexus* after Pagenstecher; contains nothing original except that a Fig. (No. 140) of *Ixodes ricinus* after Küchenmeister is described in the legend as *Dermanyssus gallinae*! This correct in the 1st ed., p. 320.)
- Mosquera, B.** see Palacios.
- Mosso (14. I. 1899)**, Pouvoir anticoagulant de l'*Ixodes ricinus*. *La Presse Médicale*, (4), (Soc. étrangères), p. 20. Review in *Rec. d. méd. vét.*, sér. 8, vi. p. 181.
- Motas (read 27. XII. 1902)**, La piroplasmose ovine, "Cârçeag." *Comptes Rendus Soc. de Biol.*, LIV. 1522-1524 (1903).
- (25. IV. 1903), Sur le rôle des Tiques dans le développement de la piroplasmose ovine (Cârçeag). 2nd note. *C. R. Soc. Biologie*, LV. 501-504.
- (1904), Contribution à l'étude de la Piroplasmose ovine (Cârçeag). *Arkiva Veterinară*, Bucharest, 7 Figs., 50 pp. repr. (*Rhipicephalus bursa* transmits *Piroplasma ovis*.)

Bibliography of the Ixodoidea MOT-NEU

- Motas (II. 1905)**, Transmission expérimentale de la Piroplasmose Bovine par les Tiques. *Arhiva Veterinară*, Bucharest, II. 2 pp. (cutting).
 — see **Nocard**.
- Moufétius, T. (1634)**, *Insectorum sive minimorum animalium theatrum*, pp. 20+328, with many figs., London, fol. (De ricino et reduvio, pp. 271-273; L.E.R.)
- Müller, Joh. (1831)**, *Ixodes ophiophilus*, eine neue Zeckenart, auf einer Schlange gefunden, und beschrieben. *Nova Acta Phys.-Med. Acad. Caesar. Leop.-Carol. Naturae Curios.*, Vratislaviae et Bonnae, xv. 233-242, Pl. LXVII, Figs. 1-5. (Undeterminable species, possibly an *Aponomma*.)
- Müller, P. W. J. (1817)**, Bemerkungen über einige Insekten; (4) Ueber die Begattung und Fortpflanzung der Ixoden. *Magazin der Entomologie*, II. pp. 278-289. (Cited by Gené 1844; also in transl. of Gené 1849, p. 6, also by Pagenstecher 1861, p. 8: refers to copulation in *Ixodes*.)
- Muriay, A. (1877)**, *Economic Entomology*; Aptera, I. pp. iii-xxiii, 3-433, with numerous text-figures. London: Chapman and Hall (South Kensington Museum Science Handbooks). (See Ixodoidea, pp. 180-204, 28 Figs., of which 9 appear original (?); all poor however and mostly copied from C. L. Koch, 1847.)
- Nègre**, see **Laveran**.
- Nelson, J. C. (1897)**, Crude petroleum for ticks. [Letter to editor, dated May 20th.] *Agric. Journ.*, Cape Town, x. (12), June 10th, 697-698.
- Neumann, C. J.** see **Kramer**.
- Neumann, L. G. (1888)**, *Traité des maladies parasitaires non-microbiennes des animaux domestiques*, pp. 673, Figs. 306. Paris.
- (1892a), *Traité des maladies parasitaires non-microbiennes des animaux domestiques*, 2. éd., pp. 767, Figs. 364. Paris.
- (1892b), *A treatise on the parasites and parasitic diseases of the domesticated animals*, pp. 800, Figs. 364.
- (1896), Révision de la famille des Ixodidés. I. Argasines. *Mém. Soc. Zool. de France*, ix. pp. 1-44, Figs. 1-36.
- (1897), Révision de la famille des Ixodidés. (2^e mémoire.) *Mém. Soc. Zool. de France*, x. 324-420, Figs. 1-45.
- (1899a), Révision de la famille des Ixodidés. (3^e mémoire.) *Mém. Soc. Zool. de France*, xii. 107-294, Figs. 1-63.
- (1899b), Anomalies d'Ixodidés. *Arch. de Parasitol.*, Paris, II. 463-465, Figs. 1, 2.
- (1900), *Notice sur la collection d'Ixodidae de M. C. G. Schillings* (Weierhof, Gürzenich bei Düren), 4 pp., 8°, Toulouse. (Cited by Neumann, 1907, p. 16. Impossible to procure, Neumann himself does not possess a copy and a letter of mine to Schillings remains unanswered. Privately printed and all the copies sent to Schillings.)
- (1901), Révision de la famille des Ixodidés. 4^e Mémoire. *Mém. Soc. Zool. de France*, xiv. 249-372, 18 Figs.
- (1902a), Notes sur les Ixodidés, I. *Arch. de Parasitol.*, vi. 109-128, 6 Text-Figs.
- (1902b), Note sur une collection d'Ectoparasites recueillis en Abyssinie par M. le Baron C. von Erlanger. *Arch. de Parasitol.*, vi. 293. 294. (Of ticks there are listed species of *Amblyomma*, *Haemaphysalis* and *Rhipicephalus*.)

- Neumann, L. G. (1902 c), Sur la transmission des maladies microbiennes par les Ixodidés. *Arch. méd. de Toulouse*, VIII. 457; 481.
- (1903), Acariens parasites. *Résult. Voyage Belgica Zool.*, 6 pp. (*Ixodes putus*.)
- (1904), Notes sur les Ixodidés, II. *Arch. de Parasitol.*, VIII. 444-464, 2 Text-Figs.
- (1905), Notes sur les Ixodidés, III. *Arch. de Parasitol.*, IX. 225-241.
- (1905 a), *A Treatise on the Parasites and Parasitic Diseases of the Domesticated Animals*. Translated by G. Fleming. 2nd ed. revised and edited by J. Maqueen. 900 pp., 365 illustrations. London: Baillière, Tindall and Cox. 22 x 15cm. Price 21/- net. Cloth.
- (1906), Notes sur les Ixodidés, IV. *Arch. de Parasitologie*, x. 195-219, 17 Figs.
- (x. 1906 Date of MS.), Note XVI. Ixodidé nouveau de l'Australie *Amblyomma albolimbatum*, n.sp. *Notes from the Leyden Museum*, XXVIII. 218-220, 1 Text-Fig. reprint.
- (1907), Notes sur les Ixodidés, V. *Arch. de Parasitologie*, XI, pp. 215-232, Figs. 1-14. (4 n. spp.: *Rhipicephalus* (2), *Margaropus*, *Argas*.)
- (1907 a), Ixodidae. *Wissenschaftliche Ergebnisse der Schwedischen Zoologischen Expedition nach dem Kilimandjaro, dem Meru und den umgebenden Massai-steppen Deutsch-Ostafrikas 1905-1906 unter Leitung von Prof. Dr. Yngve Sjöstedt*, pp. 18-30. Herausg. v. d. Königl. Schwed. Akad. d. Wiss. Uppsala, 1907. (*Ixodes ugandanus djaronensis* nov. subsp., *Rhipicephalus simus planus* nov. subsp., *Dermacentor rhinocerotis permaculatus* nov. subspec. and known species.)
- (II. 1907), Description of two new species of African Ticks. *Annals of Trop. Med. and Parasitol.* (Univ. of Liverpool), I. 115-120, Figs. 22-25.
- (V. 1907), Note XI, Quatre nouvelles espèces d'Ixodidés. *Notes from the Leyden Museum*, XXIX. 88-100, 7 Figs.
- (XII. 1907), Note sur les Ixodidae recueillis dans les îles de l'Océan Indien par M. J. Stanley Gardiner. *Trans. Linn. Soc., London*, 2 ser., Zoology, XII. 193-194. (*Amblyomma loculosum* n. sp.)
- (III. 1908), Notes sur les Ixodidés, VI. *Arch. d. Parasitologie*, XII. 1-27, 16 Figs.
- (VI. 1908), A new variety of *Ixodes pilosus* (Koch). *Trans. Roy. Soc. S. Africa*, I. 125 (published VII. 1909). (*I. pilosus* var. *howardi*.)
- (VII. 1908), Notes sur les Ixodidés, VII. *Notes from the Leyden Museum*, XXX. 73-91, Figs. 1-10.
- (1908 a), Description d'une nouvelle espèce d'Ixodiné. *Bull. du Mus. d'hist. nat.*, Paris, No. 7, pp. 352-356, Figs. 1-2 (*Rhipicephalus sulcatus* n.sp., ♂ ♀).
- (1908 b), A new species of tick from the Transvaal. *Ann. Transvaal Mus.*, I. 170-172, Pl. VII, Figs. f-i. (*Rhipicentor vicinus* n.sp. = *R. nuttalli* Cooper and Robinson.)
- (1909), Le pou d'*Orycteropus afer* et une nouvelle sous-espèce d'*Amblyomma*. *Jahrb. d. Nassau. Ver. f. Naturk. in Wiesbaden*, Jahrg. 62, reprint 6 pp., 1 Pl. (P. 6 *Amblyomma hebraeum magnum*, n. subsp., not figured.)
- (1910), Sur quelques espèces d'Ixodidae nouvelles ou insuffisamment connues. *Ann. d. Sci. nat. Zool.*, 9 sér., pp. 161-176, Figs. 1-12.

Bibliography of the *Ixodoidea* NEU-NIT

- Neumann, L. G. (VIII. 1910)**, Sur trois types d'Ixodinae de Kolenati appartenant au Muséum d'Histoire Naturelle de Paris. *Bull. du Mus. d'hist. nat.*, 1910, No. 4, p. 191.
- Neveu-Lemaire, M. (1904)**, *Parasitologie animale*, 2nd ed. (*Précis de Médecine*, No. 1), 218 pp., 301 Text-Figs. Paris: F. R. de Rudeval. (Ixodoidea: 151-157, 4 Figs.; none original.)
- Newell, W. (v. 1907)**, A simple plan of eradicating the Cattle Tick by the Pasture Rotation Method. *State Crop Pest Commission of Louisiana*, Circular No. 14, 4 pp.
- **(i. VII. 1907)**, *Regulations of the State Crop Pest Commission of Louisiana for facilitating eradication of the Texas Fever Cattle Tick in Lincoln and Claiborne Parishes*. 12 pp. Baton Rouge, La.
- Newell, W., and Dougherty, M. S. (1906)**, *The Cattle Tick. Studies of the Egg and Seed Tick stages. A simple method of eradicating the Tick*. *State Crop Pest Commission of Louisiana*, Circular No. 10, 32 pp., 8 Figs. Baton Rouge, La.
- Newell, W., and Mauldin, C. E. (I. 1908)**, Report upon the eradication of the cattle tick in Lincoln and Claiborne parishes. *State Crop Pest Commission of Louisiana*, Circ. No. 21, 4 pp. reprint.
- New South Wales (1896)**, *Intercolonial Stock Conference. Report of the Proc. of the Meeting of Experts held in August, 1896*. Pp. 17. (32 × 20 cm.) Sydney: Chas. Potter, Gov't Printer.
- Newstead, R. (XI. 1905)**, On the External Anatomy of *Ornithodoros moubata*. *Liverpool School of Tropical Medicine*, Memoir xvii. pp. 21-26, 1 Map, Pls. I-IV.
- **(30. XII. 1905)**, On the pathogenic Ticks concerned in the distribution of disease in man, with special reference to the differential characters in *Ornithodoros moubata*. *Brit. Med. Journ.*, pp. 1695-1697; also *Lancet*, CLXIX. pp. 365-385.
- **(1906)**, Insects and ticks in relation to animal diseases. *Vet. Journ.*, London, LXII. (XIII. n.s.) 428-430.
- **(1909)**, Reports of the twenty-first expedition of the Liverpool School of Tropical Medicine, Jamaica, 1908-1909. Section I. Medical and Economic Entomology. *Ann. Trop. Med. and Parasitol.*, III. 421-469, Pl. XIII-XV, 2 Text-Figs.
- **(IV. 1910)**, Tick and other blood-sucking Arthropoda of Jamaica. *Bulletin of the Dep't of Agriculture, Jamaica*, I. 145-175, Pls. 41-49.
- Nicolle, C., and Comte, C. (1905)**, Sur le rôle possible de *Hyalomma aegyptium*, dans l'affection hémogrégarinienne de *Testudo mauritanica*. *C. R. Soc. Biol.*, LVIII. 1045.
- Niles, E. P. (1897)**, The cattle tick in Virginia. *Bull. No. 76, Virginia Agric. Exp. Sta.*, n. s., VI., pp. 45-50; also *Southern Planter*, pp. 326, 327. (S. and S. bibl.)
- **(1898 b)**, A preliminary study of ticks. *Bull. No. 86, Virginia Agric. Exp. Sta.*, n. s., VII., pp. 25-30, Pls. 4. (S. and S. bibl.)
- Nitsch (1818)**, Article "Acarina" in Ersch and Gruber's *Encyclopaedie*, s. 1, Vol. I. 246 et seq. (Follows Latreille, the Riciniae including two genera, *Ixodes* and *Argas*. Cit. Pagenstecher, 1861, p. 9.)

Bibliography of the Ixodoidea NOC-NUT

- Nocard, E.** (10. X. 1901), Discussion following communication by Almy, *q.v.*
- (1902), Sur la fréquence en France et sur le diagnostic de la piroplasmose canine. *Bull. de la Soc. centr. de méd. vétér.*, p. 716 (rev. by Ch. Porcher in *Centralbl. f. Bakteriöl.*, 1903, xxxiii. 412).
- Nocard and Almy** (28. III. 1901), Une observation de piroplasmose canine. *Recueil de méd. vétér.*, 8 sér., T. viii. 1901, including (Annexe) *Bull. de la Soc. centr. de méd. vétér.*, n.s., T. xix. pp. 192-195.
- Nocard and Motas** (iv. 1902), Contribution à l'étude de la piroplasmose canine. *Annales de l'Institut Pasteur*, T. xvi. pp. 257-290 (Plates); also *Bulletin de la Soc. centr. de méd. vétér.*, 8 sér., ix. pp. 253-283, 2 Figs. Séance du 1 Mai, 1902.
- Nordenskiöld, E.** (31. I. 1905), Zur Anatomie und Histologie von *Ixodes reduvius*. *Zool. Anzeiger*, xxviii. 478-485, 7 Text-Figs.
- (1906 a), Zur Anatomie und Histologie von *Ixodes reduvius* (concl.). *Zool. Anzeiger*, xxx. 118, 8 Figs. (This and the preceding paper are preliminary notes to Nordenskiöld, 1908, *q.v.*)
- (1906 b), Ein eigenartiges Drüsensystem bei *Ixodes*. *Zool. Anzeiger*, xxx. 484.
- (1908), Zur Anatomie und Histologie von *Ixodes reduvius*. *Zool. Jahrb.*, 1908, pp. 637-672, 2 Text-Figs., 3 Plates. (Important.)
- (13. VII. 1909), Zur Spermatogenese von *Ixodes reduvius*. *Zool. Anzeiger*, xxxiv. 511-516, 10 Text-Figs.
- (5. X. 1909), Zur Ovogenese und Entwicklungsgeschichte von *Ixodes reduvius*. *Zool. Anzeiger*, xxxv. 30-35, 4 Text-Figs.
- (1909 c), Zur Anatomie und Histologie von *Ixodes reduvius*, II. *Zool. Jahrb.*, 1909, pp. 449-464, Pl. XXX. (Important.)
- Nördlinger** (1855), *Die kleinen Feinde der Landwirthschaft*, p. 20. (Brief mention of ticks on grass, attack man and animals, notes branching intestine. Cit. Pagenstecher, 1861, p. 15.)
- Nörsgaard, V. A.** (1897), Dipping cattle for destruction of ticks. *12th Ann. Rep. Bur. Animal Industry, U. S. Dep't Agric.*, 1895. Washington, 1897. (Cit. Nuttall, 1899.)
- (1898), Cattle dipping, experimental and practical. *U. S. Dep't Agric., Yearbook*, 1898, pp. 453-472. (Experiments, principally with saturated solutions of sulphur in extra dynamo oil.) (H. and H. bibl.)
- Notter and Firth** (1908), *The Theory and Practice of Hygiene*. 3rd ed., 993 pp. London: Churchill. (Pp. 606-609 deal briefly with ticks. Plate XIII, Text-Figs. 125, 126. Contains no original matter.)
- Nuttall, G. H. F.** (1898), Neuere Untersuchungen über Malaria, Texasfieber und Tsetsefliegenkrankheit. *Hygienische Rundschau*, viii. 1084-1103, 1137. (Ticks in relation to piroplasmosis, p. 1096.)
- (1899), On the rôle 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*, viii. 154 pages, 3 Plates.
- (1899), Die Rolle der Insekten, Arachniden und Myriapoden als Träger bei der Verbreitung von durch Bakterien und thierische Parasiten verursachten Krankheiten des Menschen und der Thiere. Eine kritisch-historische Studie. *Hygienische Rundschau*, ix. 209-220, 275-289, 393-408, 503-520, 606-620 (translation of the above).

- Nuttall, G. H. F.** (1900), *Rôle des Insectes, des Arachnides et des Myriapodes dans la transmission et la dissémination des maladies bactériennes et parasitaires de l'homme et des animaux. Étude critique et historique. Traduit de l'anglais par le Dr Levrier, Médecin de 1re Classe des Colonies.* 161 pp. Bordeaux: Imprimerie du Midi, P. Cassagnol (translation of the above).
- (1904), Canine Piroplasmosis, I. *Journ. of Hygiene*, iv. 219–257, Pl. XII–XIII, 7 Charts. (Pp. 220 et seq. ticks in relation to piroplasmosis; pp. 227 et seq. *Haemaphysalis leachi*, Plates XII–XIII, Figs. 1–7, photos of larva, nymph, female; experimental transmission of canine piroplasmosis by ticks.)
- (1905), Ticks and tick-transmitted diseases. (Paper read 9. xii. 1904.) *Trans. Epidemiol. Soc., London, N.S.*, vol. xxiv., Session 1904–1905, pp. 12–32, 1 Map.
- (xii. 1907), *Directions for the collection of blood-sucking Insects and other Arthropods concerned in disease transmission.* Printed for the use of the Colonial Office, etc. Misc. No. 213, 6 pp. (London.)
- (vii. 1908), The Ixodoidea or Ticks. *Journ. Roy. Inst. Publ. Health*, xvi. 385–403, 7 Figs., 1 Diagr. (original). Harben Lecture, I.
- (viii. 1908), Spirochaetosis in Man and Animals. *Journ. Roy. Inst. Publ. Health*, xvi. 449–464. Harben Lecture, II. (Argasidae in relation to disease.)
- (ix. 1908), Piroplasmosis. Harben Lecture, III. *Journ. Roy. Inst. Publ. Health*, xvi. 513–526. (Ticks mentioned which transmit the disease.)
- (xii. 1910), New species of Ticks (*Ixodes*, *Amblyomma*, *Rhipicephalus*). *Parasitology*, iii. 408–416, 7 Figs.
- (28. ii. 1911), The adaptation of ticks to the habits of their hosts. (Abstract of following paper; read before the Cambridge Phil. Soc.) *Cambr. Univ. Reporter*, xli. 681; also *Proc. Cambr. Philos. Soc.*, xvi. 189–190.
- (31. iii. 1911), On the adaptation of Ixodoidea to the habits of their hosts. *Parasitology*, iv. 46–67, 26 Text-Figs.
- Nuttall, G. H. F., Cooper, W. F., and Robinson, L. E.** (vi. 1908), The structure and biology of *Haemaphysalis punctata*, Can. and Fan. *Parasitology*, i. 152–181, Plates XII–XVI, 9 Text-Figs.
- (x. 1908), On the structure of “Haller’s Organ” in the Ixodoidea. *Parasitology*, i. 238–242, Pl. XVIII, 1 Text-Fig.
- (xii. 1908), On the structure of the spiracles of a Tick—*Haemaphysalis punctata* Canestrini and Fanzago. (2 Plates.) *Parasitology*, i. 347–351.
- Nuttall, G. H. F., Cooper, W. F., and Smedley, R. D.** (1905), The buccal apparatus of a Tick (*Haemaphysalis punctata* C. and F.). Repr. 2 pp. *British Assoc. Adv. Sci.*, Meeting held in S. Africa.
- Nuttall, G. H. F., and Graham-Smith, G. S.** (vii. 1905), Canine Piroplasmosis, II. *Journ. of Hygiene*, v. 237–249 (Plate IX) [followed by Graham-Smith, Canine Piroplasmosis, III., Morbid Anatomy (2 Charts and 2 Plates); Wright, Canine Piroplasmosis, IV., On certain changes in the blood].
- (1906), Canine Piroplasmosis, V. *Journ. of Hygiene*, vi. 586–651, Plates XI–XIII, 23 Text-Figs.
- (1907), Canine Piroplasmosis, VI. *Journ. of Hygiene*, vii. 232–272, Plates I–III, 14 diagrams.
- (vi. 1908), The mode of multiplication of *Piroplasma bovis* and *P. pitheci* in the circulating blood compared with that of *P. canis* with notes on other

Bibliography of the Ixodoidea NUT-OD

- species of *Piroplasma*. (Plate XI, and Diagrams I-IV.) *Parasitology*, i. 134-142.
- Nuttall, G. H. F., and Graham-Smith, G. S. (x. 1908)**, Notes on the Drug Treatment of Canine Piroplasmosis. *Parasitology*, i. 220-226.
- (x. 1908), The development of *Piroplasma canis* in culture. (Plate XIX, 1 Text-Fig.) *Parasitology*, i. 243-260.
- (ix. 1909), *Theileria parva*: attempts at cultivation. *Parasitology*, ii. 208-210.
- (ix. 1909), Note on attempts to infect the fox and jackal with *Piroplasma canis*. *Parasitology*, ii. 211-214.
- (ix. 1909), Note on immunity in canine piroplasmosis. *Parasitology*, ii. 215-228.
- Nuttall, G. H. F., and Hadwen, S. (vii. 1909)**, The successful drug treatment of canine piroplasmosis together with observations upon the effect of drugs on *Piroplasma canis*. *Parasitology*, ii. 156-191, 1 Text-Fig.
- (ix. 1909), Further experiments upon the drug treatment of canine piroplasmosis. *Parasitology*, ii. 229-235.
- (ix. 1909), The drug treatment of piroplasmosis in cattle. *Parasitology*, ii. 236-266, 7 Charts.
- Nuttall, G. H. F., and Merriman, G. (1911)**, The process of copulation in *Ornithodoros moubata*. *Parasitology*, iv. 39-45, 1 Text-Fig.
- Nuttall, G. H. F., and Strickland, C. (23. xi. 1908)**, The presence of anticoagulin in the salivary glands and intestine of *Argas persicus*. *Parasitology*, i. 302-310.
- Nuttall, G. H. F., and Warburton, C. (read 28. xii. 1907, printed 1908)**, On a new genus of Ixodoidea together with a description of eleven new species of ticks. *Proc. Camb. Philos. Soc.* xiv. 392-416, 45 Text-Figs. (genus *Rhipiceptor* founded etc.).
- Nuttall, G. H. F., Warburton, C., Cooper, W. F., and Robinson, L. E. (x. 1908)**, *Ticks. A Monograph of the Ixodoidea*. Part I. The Argasidae. 104 pp. + 35 pp. (Bibliography). 3 Plates, 116 Text-Figures.
- Nuttall, G. H. F.** see Warburton.
- Oken (1818)**, Sogenannte giftige Wanzen in Persien. *Isis*, 1818, pp. 1567-1570, Pl. XIX, Figs. 1-4.
- (1835), *Allgemeine Naturgeschichte*, v. 662. (Brief reference to *Ixodes* and *Argas*. Cit. Pagenstecher, 1861, p. 11.)
- Osborn, H. (1893)**, Methods of attacking parasites of domestic animals. *Insect Life*, Washington, vi. 163-166. (Measures against ticks on cattle; discussion.)
- (1896), Insects affecting domestic animals: an account of the species of importance in North America, with mention of related forms occurring in other animals. *U. S. Dep't of Agricult., Division of Entomol., Bulletin No. 5*, N.S. (Washington, D.C.), 302 pp., 5 Plates, 170 Figs.
- (1899), *Fur Seals and Fur Seal Islands of the North Pacific Ocean*, iii. 553. (Cited by Banks, 1908, p. 53, re *I. arcticus* Banks.)
- Oudemans, A. C. (1. iii. 1905)**, *Amblyomma scaevola* nov. sp. *Entomol. Berichten*, No. 22, p. 216.

Bibliography of the Ixodoidea OUD-PAL

- Oudemans, A. C. (1906)**, *Amblyomma scaevola* Oudms. in *Resultats de l'Expédition Scientifique Néerlandaise à la Nouvelle-Guinée en 1903, sous les auspices de A. Wichmann*, Vol. v., *Zoologie*, Livr. I. pp. 130-131.
- Packard, A. S. (1869)**, List of hymenopterous and lepidopterous insects collected by the Smithsonian expedition to South America, under Prof. James Orton; appendix to report on Articulates, *Ann. Rept. Peabody Academy of Science*, pp. 1-14. (Contains descriptions of following species of American forms: *Ixodes perpunctatus*, *unipunctata* (= *Amblyomma americanum*), *leporis-palustris* (*Haemaphysalis*), *chordeilis*, *bovis* (= *Boophilus annulatus*), *bibronii*, *naponensis* (S. A.), *albipictus* (N. A.), *nigrolineatus*, *cookei*. (H. and H. bibl.)
- (1869 a), Report of the curator of Articulata. *First Ann. Report Trustees Peabody Acad. of Sci.*, Jan., pp. 52-69. (S. and S. bibl.)
- (1869 b), *Guide to the study of insects*, and a treatise of those injurious and beneficial to crops: for the use of colleges, farm schools, and agriculturists, pp. vii+702, Pls. XI, woodcuts 650, 8°, Salem. (S. and S. bibl.)
- (1872), "Arachnida" in *U. S. Geological Survey of the Territories*, etc., p. 740, Fig. 68. (*Argas americanus*: description reprinted by Osborn, 1896, p. 256.)
- (1873), Descriptions of new insects. Arachnida. *Sixth Ann. Rept. U. S. Geolog. Survey of the Territories* for 1872 (Hayden), pp. 740-741, Figs. 65-68.
- (1876), *Guide to the study of insects* and a treatise on those injurious and beneficial to crops etc., 5th ed. New York: H. Holt and Co. 715 pp., 15 Pl., 672 Figs. (Ticks: pp. 661-663; Fig. 638 (poor) of *I. albipictus* Packard; Pl. XIII, Fig. 11 of *I. unipunctata* Packard.)
- (1893), Note on *A. americanus*. *Insect Life*, v. 267, 348.
- (1895), Note on the chicken tick (*Argas americanus* Pack.). *Insect Life*, vii. 417, 418.
- Pagenstecher, H. A. (1857)**, *Verhandl. Ver. Heidelberg*, I., p. 46. (Cited by author in *Zeitschr. f. wiss. Zool.*, xi. 119.)
- (1861), *Beiträge zur Anatomie der Milben*, Heft 2, *Ixodes ricinus*. Leipzig: W. Engelmann, 45 pp., 2 Pls., 35×27 cm. (Important. On pp. 2 et seq. the author gives extracts from classical literature relating to the earliest mention of ticks: we cite some of these in this bibliography; pp. 16 et seq. relate to detailed account of the structure and biology of *I. ricinus* (illustrated by plates); pp. 39 et seq. contain description of *I. vulpis*, *I. ornithorhynchi*, *I. sturni*, *I. lacertae*, *I. ameivae*.)
- (1861 a), Zur Kenntniss des *Ixodes ricinus*. Briefliche Mittheilungen an Herrn Prof. von Siebold. *Zeitschr. f. wiss. Zoologie*, xi. 162-163.
- (1861 b), [*Argas reflexus*.] *Virchow's Arch.*, xix. p. 457. (Cited by Pagenstecher, 1862.)
- (1861 c), Zur Anatomie von *Argas reflexus*. *Zeitschr. f. wiss. Zoologie*, xi. 142-155, Pl. XVI. Figs. 1-13.
- (1861 d), Ueber *Argas reflexus*. *Heidlb. Jahrb. d. Literatur*, liv. 568-569.
- Palacios, G. D., and Mosquera, B. (1905)**, Tripanosomiasis y fiebre de Tejas. *Laboratorio del Hospital Vargas* (Caracas), Boletín No. 2, pp. 43-50.

- Pallas, P. S. (? 1766), *Spicilegium Zoologicum*, fasc. ix., p. 41, Pl. III, Fig. 10. (Pagenstecher, 1861, p. 6, states that this work was published before 1767; Neumann gives the date at 1775, citing the author in relation to *Amblyomma* (?) *aureolatum* (Pallas).)
- (1777), *Naturgeschichte merkwürdiger Thiere*. Part 2, pp. 67 et seq. (Translation of foregoing by Baldinger; cited by Pagenstecher, 1861, p. 6, who states that the author's three species: *Acarus ricinus*, *reduvius* and *cardinalis*, are one and the same species. *A. grossus* is also described. The descriptions too vague to be of any use.)
- Panzer, G. W. F. (1795), *Fauna Insectorum Germanicæ Initia*. (Fasc. 59, n. 23, *Acarus frontalis* Panzer; fasc. 90, n. 22, *Acarus plumbeus* Panzer. Cited by C. L. Koch, 1844, p. 234.)
- Patton, W. S. (9. IV. 1910), Preliminary Report on a new Piroplasm (*Piroplasma gibsoni* sp. nov.) found in the blood of Hounds of the Madras Hunt and subsequently discovered in the blood of the jackal (*Canis aureus*). *Bull. Soc. Pathol. Exotique*, Paris, III. 274-280. (*Haemaphysalis bispinosa* and *Rhipicephalus* sp. found on jackal.)
- Pavesi, P. (1884), Aracnidi del regno di Scioia. *Annali del Museo Civico di Storia Naturale di Genova*, xx. 102. (Cit. Neumann.)
- (1884), Materiali per lo studio della fauna tunisina. II. Aracnidi. *Annali del Museo Civico di Storia Naturale di Genova*, xx. pp. 483-485.
- Peiper, E. see Mosler.
- Péju, G. see Rajat.
- Perroncito, E. (1882), *I Parassiti dell' uomo e degli animali utili*, p. 459. (See next title.)
- (1901), *I Parassiti dell' uomo e degli animali utili e le più comuni malattie da essi prodotte. Profilassi e cura relativa*, pp. 276, Text-Figs., 25 Plates. Milano: F. Vallardi. (Pp. 561-568 relate to ticks, 2 Figs., one after Gurlt, the other very similar to Blanchard's of *A. persicus*.)
- Perrucci, P. (1907), Osservazioni sulla malaria equina (piroplasmosi). *Clin. vet.*, Milano, sez. scient. bimest., xxx. 159-185, Pls. I-II. (Inaccessible.)
- Petronius (about A.D. 60), *Petronii Arbitri fragmentum Tragurii repert.* ed. 1663. (Latin citation in Pagenstecher, 1861, p. 3, which we translate freely: p. 40 "you see a louse on someone else, but can't see a tick (ricinus) on yourself.")
- Pickard-Cambridge, O. (1878), An account of the Collections made in Kerguelen Land during the Transit of Venus Expedition (1874-1875). Zoology: Arachnida. In *Philos. Trans. Roy. Soc.*, London, CLXVIII. 222, Pl. XIII, Fig. 4. (*Ixodes putus*, nymph, described as *Hyalomma puta*.)
- (1889), On a new species of *Haemaphysalis* C. L. Koch, imported into England by *Syrrhaptus paradoxus*. *Ann. and Mag. of Nat. Hist.*, London, III., 6th Ser., p. 406, 2 Text-Figs. (*Haemaphysalis peregrinus*, badly described, types lost, undeterminable.)
- Planchon, L. (1895), Observations sur la résistance vitale de *P. Argas reflexus* Latr. *Feuille des Jeun. Naturalist.*, (3) xxvi. 29. (Cit. Huber, bibl., 1899, p. 15; inaccessible.)
- Plateau, F. (1876), Note sur les phénomènes de la digestion et sur la structure de l'appareil digestive chez les Phalangides. *Bull. Acad. Roy. d. Sci. Belgique*,

- 2 s., XLII. 719-754, Pl., Figs. 1-29. (Bears indirectly upon the same subject in ticks.)
- Plehn, A. (1902),** *Tropenhygiene*. (Cited by Werner, 1906, p. 779, as stating that the natives of German E. Africa have long referred fever to bites of "papusi" (Suaheli for tick).)
- Pliny (A.D. 77),** *Historia naturalis*, ed. Sillig, 1858, Vol. II., lib. xi. 116. (Latin citations from the original in Pagenstecher, 1861, p. 3, which we translate as follows: p. 282 "there is an animal (occurring) at the same season (summer?), living on blood, with its head always fixed, and swelling; (being) one of the animals which has no (anus) exit for its food, it bursts with over repletion and dies from its actual nourishment. This (animal) never occurs on mules, (it is) frequent on cattle, (it occurs) sometimes on dogs, on which all (kinds of lice) are found; on sheep and goats the one only (is found)." In Vol. IV. xxviii. 256, p. 239: "if a woman's loins are smeared with the blood of a tick taken from a black wild bull, Osthunes says she cares no more for sexual intercourse.")
- Ibid.*, xxx. 82, p. 404, seers attach much importance to this "most disgusting animal, since it has no exit to its gut nor is there any limit to its capacity for living long without food." The gorged tick bursts after some days through satiety; "when tied to the left ear of a dog they calm all its pains. They use it in auguries from the vitals, for if the sick man gives an answer to the seer who has brought it, asking about his disease, there is a certain hope of life," etc. *Ibid.*, xxx. 106, p. 410: "the blood of a tick heals erysipelas." *Ibid.*, xxx. 134, p. 419: "The blood of a healthy pulled-out tick is said to act as a depilatory."
- Pocock, R. I. (23. I. 1900),** On a collection of insects and arachnids made in 1895 and 1897, by Mr C. V. A. Peel, F.Z.S., in Somaliland, with descriptions of new species. 9. Chilopoda and Arachnida. *Proceedings Zool. Soc. of London*, 1900, Text, pp. 49-51 (relate to ticks), Pl. III, Figs. 1-1 d, 2-2 f.
- (1900), Rare English ticks. *Zoologist*, 4 s., IV. 326-327. [*Dermacentor reticulatus* on sheep and hogs, *Haemaphysalis punctata* on hedgehogs, *Hyalomma affine* (accidental).]
- (1901), (Description of *Boophilus annulatus*, with coloured plate, being "Appendix C" included by Sambon, L. W. and Low, G. C. (1901) in their paper entitled "The Mosquito-Malaria Theory"). *Med. Chir. Trans.*, LXXXIV. 497-552. (The plate includes somewhat sketchy but well-coloured figures of ♀ and larva of *B. annulatus*; the eyes omitted.)
- (1903). See Christy, 1903, p. 188.
- (1907), Article "Ticks," in *A System of Medicine by many Authors*, edited by Allbutt and Rolleston (London: Macmillan), vol. II. Part II., pp. 187-203. (Partial Bibliography, contains numerous inaccuracies.)
- Pohl and Kollar (1823),** *Brasilien's vorzüglich lustige Insecten*. Wien. (*Argasidae*: title cit. in Huber, bibl., 1899, p. 14; inaccessible.)
- Pöppig (before 1855),** *Illustrierte Naturgeschichte*, IV. 53, Fig. 2845. (Cited by Küchenmeister, 1855, p. 422, as giving a good figure of the mouthparts of the "Egyptian tick.")
- Porter (1821),** *Travels*. (Die giftigen Wanzen in Persien. *Froriep. Not.* I. No. 12: cited thus in Huber, bibl., 1899, p. 16, as referring to *A. persicus*.)

Bibliography of the Ixodoidea

POU-RAN

- Pound, C. J.** (12. II. 1895), *Redwater disease in cattle in the Gulf District (Progress Report)*, 20 pp. Brisbane, Queensland: E. Gregory, Gov't Printer.
- (1895), Redwater disease in cattle. *Veterinarian*, London, xli. (n. s.) 389-395, 443-454.
- (1895-6), (Piroplasmosis in cattle in Australia). *U. S. Dept of Agric., Bureau of Animal Industry*, 12th and 13th Annual Reports. (Pp. 86-95; full abstracts of Pound's report are here quoted by Salmon. Biology of *Boophilus* also dealt with.)
- (30. IX. 1897), Ticks and Redwater. *Agric. Journ.*, Cape Town, xi. 364.
- (1. IX. 1897), Tick fever. *Queensland Agric. Journ.*, i. 258, 2 Figs.
- (1898), Tick fever in cattle. *Journ. Quekett Microscop. Club*, vii. 118-119. [Inoculation; local names in Queensland.]
- (1899), Notes on the cattle tick. Its developement, life-history, habits and geographical distribution. *Proc. R. Soc. Queensland*, xiv. 28-38. [*Boophilus*: bionomics.]
- (VII. 1899), Tick Fever. Observations on ticks and tick fever at the Indooroopilly Experiment Station and at St Helena. *Queensland Agricult. Journ.*, v. 81-86, Pls. CXX-CXXI. Reprint, 6 pp.
- (1900), Tick fever in cattle. *Amer. microscop. Journ.*, xxi. 123-127.
- Pound, G. C., and Hunt** (1895), See article "Texas Fever in Australia," in 12th Annual Report, Bureau of Animal Industry, U. S. Dept of Agricult., pp. 85-95. Washington, 1897. (Cit. Nuttall, 1899.)
- Price, T. M.** (1905), The preparation of emulsions of crude petroleum. *U. S. Dept Agric., Bur. Animal Industry*, Circ. No. 89, 4 pp. (Cattle spraying.)
- Purvis, C.** (1901-2), Some South African animal diseases. *Proc. Scottish Microsc. Soc.*, iii. 284-293, Pl. XX, reprint. (Brief mention of some tick-transmitted diseases; semipopular address.)
- Railliet, A.** (1886), *Éléments de zoologie médicale et agricole*, pp. xv + 1053, Figs. 705, 8°. Paris.
- (1893), *Traité de zoologie médicale et agricole*, fasc. 1, pp. 736, Figs. 494.
- (1895), *Traité de zoologie médicale et agricole*, 2nd ed. Paris: Asselin et Houzeau. (Ticks: pp. 703-718, Figs. 478-488.)
- Rainbow, W. J.** (1896), Redwater or Cattle Tick Plague in Queensland. *Veter. Journ.*, 1896, p. 75.
- (1899), The Queensland cattle tick. *Rec. Austral. Mus.*, Sydney, iii. 131-133.
- (1904), A new bat tick. *Rec. Austral. Mus.*, Sydney, v. 78-79, Pl. IX, Figs. 1-14.
- Rajat, H., and Péju, G.** (1906), Piroplasmes et piroplasmoses. *Journ. de méd. vét. et zootech.*, Lyon, LVII. 619-629, Figs. 1-4.
- Rangel, R.** (1905), Note preliminar sobre la peste boba y la desrengadera de los equideos de los Llanos de Venezuela (Tripanosomiasis). *Laboratorio del Hospital Vargas* (Caracas). Boletin No. 2, pp. 11-39, 2 Col. Pl.
- Ransom, B. H.** (1905), How parasites are transmitted. *Yearbook of the Dept of Agric. Washington, D.C.* (appeared 1906), pp. 139-166, Figs. 9-58. (P. 145 and Figs. 14-16 refer briefly to ticks. Nothing original.)

- Ransom, B. H.** (20. VIII. 1906), Some unusual host relations of the Texas Fever Tick. *U. S. Dep't Agricult., Bur. Anim. Industry*, Circular No. 98, 8 pp. reprint.
- Raspail, F. V.** (1839), Rech. d'hist. nat. sur les insectes morbipares. *Gaz. des hôpitaux* (2), 1. p. 9. (Cited by Terrenzi, 1893, pp. 73-76, and Braun, 1895, p. 258, in connection with *Argas reflexus*.)
- Ray, J.** (1710), *Historia insectorum*, pp. xv+375; appendix, pp. 377-400, London.
- Raymondaud, E.** (1885), Un chapitre à ajouter à l'histoire pathologique des affections parasitaires. Esquisse monographique du genre *Ixode*, considérée dans ses rapports avec la pathologie. *Journ. Soc. de méd. et pharm. de la Haute-Vienne*, Limoges, 1884, VIII. 129; 161. (Also): *C.-R. Congr. périod. internat. d. sc. méd.* (1884), Copenh., (1886), 1., sect. d. path. gén., etc., 48-64. Also Programme définitif du Congrès de Copenhague, p. 9.
- "**R. E.**" (1874), *Argas reflexus*. *Science Gossip*, 1874, p. 161.
- Reaney, M. F.** (v. 1907), Spirillosis in domestic fowls. *Brit. Med. Journ.*, 1. 1118. (Only a note.)
- (XI. 1907), Fowl spirillosis. *Ind. Med. Gaz.*, XLII. 401, 402. (2 Figs., bad.)
- Reclus, A.** (1880), Explorations aux isthmes de Panama et de Darien, en 1876, 1877, 1878. *Le Tour du Monde*, 1880, XXXIX. 396-398. (Cit. Nuttall, 1899, p. 48.)
- Reclus and Duplay** (1890), *Traité de chir.*, 1., p. 323. ("Rigabert a constaté la transmission du charbon chez une femme par un *Ixode*." Citation in Huber, bibl., 1910, p. 24.)
- Redding, R. J.** (1889), Cattle ticks and Texas fever. *Georgia Agr. Exp. Sta.*, Bull. 49, pp. 228-229. (H. and H. bibl.)
- Redi, Francesco** (1730), *Esperienze intorno alla generazione degl' insetti*, ed. Acad. Milan, 1819, op. III., p. 180, Pl. II. (A passage quoted by Pagenstecher, 1861, p. 4, reads: "Nello stesso modo è disegnata la zecca del capriolo e della tigre," the tick of the lion is larger than that of the tiger and is distinguished by its colour.)
- Report** (1896), *Of the Intercolonial Stock Conference, held in Sydney, N. S. Wales*, Aug. 1896. 10 pp. Sydney: Chas. Potter, Gov't Printer.
- Rey, E.** (1867), *Zeitschr. f. d. ges. Naturwiss.*, XXIX. 192. [*Ixodes sulcatus* Koch, 1844, found on *Sitta europaea*; abstract of paper read before Naturw. Ver. Sachs. u. Thüring., Halle.]
- (1892), [Regarding "Ixodisme" in man]. Note read before the *Soc. Acad. de Toulon*, and published in *Bulletin de la Soc. française d'Hygiène*. (Largely reprinted by Mégnin, x. 1895.)
- Ribaga, C.** (1903), Diagnosi di alcune specie nuove di Hydrachnidae e di un Ixodidae del Sud America. *Ann. d. R. Scuola di Agric. in Portici*, v. reprint, 28 pp., Pl. I-II. (P. 25, *Amblyomma neumanni* Ribaga, also Pl. II, Figs. 56, 58, 59.)
- Ricketts, H. T.** (7. VII. 1906), The Study of "Rocky Mountain Spotted Fever" (Tick Fever?) by Means of Animal Inoculations: A Preliminary Communication. *Journ. Amer. Med. Ass.*, Chicago, LVII. 33-36.
- (4. VIII. 1906), The Transmission of Rocky Mountain Spotted Fever by the Bite of the Wood Tick (*Dermacentor occidentalis*). *Ibid.*, LVII. 358.

- Ricketts, H. T. (6. X. 1906), Further Observations on Rocky Mountain Spotted Fever and *Dermacentor occidentalis*. *Journ. Amer. Med. Assoc.*, Chicago, LVIII. 1067-1069.
- (1907), Further experiments with the wood-tick in relation to Rocky Mountain spotted fever. *Ibid.*, XLIX. 1278-1281.
- (1. I. 1907), Observations on the Virus and means of Transmission of Rocky Mountain Spotted Fever. *Journ. Infect. Dis.*, IV. 141-153. (P. 142, *Dermacentor occidentalis*, a 3-host tick; p. 151, the ♂ and ♀ both transmit the disease.)
- (6. VII. 1907), The rôle of the Wood Tick (*Dermacentor occidentalis*) in Rocky Mountain Spotted Fever, and the susceptibility of Local Animals to this Disease. A Preliminary Report. *Journ. Amer. Med. Ass.*, LIX. 24-27.
- (1. XII. 1907), A summary of investigations of the nature and means of transmission of Rocky Mountain spotted fever. *Trans. Chicago Path. Soc.*, VII., pp. 73-82 (read 14. x. 1907).
- (1908 a), Spotted fever report No. 1. General report of an investigation of Rocky Mountain spotted fever, carried on during 1906 and 1907. *Rep. State Bd. Health Montana*, Helena, 87-130.
- (1908 b), Spotted fever report No. 2. A report of investigations carried on during the winter of 1907-1908 and spring and summer of 1908. *Rep. State Bd. Health Montana*, Helena, 131-190.
- (30. I. 1909), A microorganism which apparently has a specific relationship to Rocky Mountain Spotted Fever. *Journ. Am. Med. Assoc.*, LII. 379-380. (Bacillus-like bodies, similar to *B. influenzae*, found in *Dermacentor* eggs laid by infected tick. Similar bodies in salivary glands, gut and ovaries of infected ♀ tick; absent in normal adult ticks. The bodies agglutinated by an immune serum.)
- (20. XI. 1909), Some aspects of Rocky Mountain Spotted Fever as shown by recent Investigation. *Med. Record*, New York, LXXVI. 843-855.
- Ricketts, H. T., and Gomez, L. (30. III. 1908), Studies on Immunity in Rocky Mountain Fever. *Journ. Infect. Diseases*, v. 221-244.
- Riley, C. V. (1869), Remarks on the *Ixodes bovis*. *Reports on the diseases of cattle in the United States, made to the Commissioner of Agriculture*, Washington p. 168. (S. and S. bibl.)
- (1870), Seed ticks under bark of apple trees. *American Entomol.*, II. 160. (S. and S. bibl.)
- (1887), Poisonous Insects. *Reference Handb. Med. Sci.*, v. 741-760, Figs. 2971-3020. (S. and S. bibl.)
- (1888), An enumeration of the published synopses, catalogues, and lists of North American Insects, together with other information intended to assist the student of American Entomology. *U. S. Dep't of Agriculture. Division of Entomology. Bulletin No. 19* (Washington, D.C.), pp. 77.
- (1893), Report on a small collection of insects made during the Death Valley Expedition. *U. S. Dep't Agric., Biol. Surv., N. A. Fauna*, No. 7, Part II, p. 252. (Lists seven species of Ixodidae—determined by Dr Marx. Cit. II. and H. bibl.)
- see Walsh.

- Riley, C. V., and Howard, L. O. (1889), The Texas cattle-tick. [Reply to a letter dated June 17th, from M. Francis, June 24th.] *Insect Life*, Washington, II. p. 20.
- (1893), The cattle tick affecting horses. *Insect Life*, Washington, v. p. 267.
- (IV. 1895), A new chicken plague in Texas, and the cattle tick affecting horses. *Insect Life*, v. 267, 348. (Further abstracts of papers on ticks in general (unimportant), *Ibid.*, vi. 58, 165.)
- (1899), The Texas cattle tick. *Insect Life*, II. 20.
- Risso, A. (1826), *Histoire naturelle des principales productions de l'Europe méridionale et principalement de celles des environs de Nice et des Alpes Maritimes*, vol. v. viii+402, Pls. I-V, Paris. (S. and S. bibl.)
- Rivolta and Delprato (1880), *Ornithojatria*, p. 314. (*A. reflexus*, cit. Huber, bibl., 1899, p. 16.)
- Robert, J. C. (1897), Acclimation fever, or Texas fever. *Miss. Agric. Exp. Sta.*, Bull. 42, pp. 32, Figs. 4. (H. and H. bibl.)
- (1901), Texas fever. *Miss. Agr. Exp. Sta.*, Bull. 69, pp. 1-15, Figs. 4. (H. and H. bibl.)
- (1902), Tick fever or murrain in Southern cattle (commonly termed Texas fever). *Miss. Agr. Exp. Sta.*, Bull. 73, pp. 1-24, Figs. 2. (H. and H. bibl.)
- Roberts, L. J. (1899), Ticks and their destruction. *Agric. Journ.*, Cape Town, xiv. 369-375.
- Robertson, F. H. (1905), Fowl tick experiments. *Journ. Dep't Agric. West Australia*, xii. 561-563. (H. and H. bibl.)
- (1909), The tick pest. *Journ. Dep't Agric. West Australia*, xviii. 368-371, 3 Figs.
- Robertson, W. (1901), Malignant Jaundice in the dog. *Journ. Comp. Path. and Therap.*, Edinburgh and London, xiv. 327-336, Figs. 1-5. (Pp. 332-336, experiments with *Haemaphysalis leachi*.)
- (5. VI. 1902), Malignant Jaundice of the Dog. *Agric. Journ.*, Cape Town, xx. 675-685.
- (1904 a), African Coast Fever. *Ibid.*, xxv. 262-268, 1 Plate, 15 Figs. (*Rhipicephalus appendiculatus*).
- (1904 b), Sulphur internally as a preventive against the attacks of ticks. *Agric. Journ.*, Cape Town, xxv. 588-590, Figs. 1-3.
- see Gray.
- Robinson, L. E., see Cooper, W. F., see Nuttall.
- Roger, J. (1906 a), Note sur une piropasmosse équine observée en Algérie. *Bull. Soc. centr. de méd. vét.*, Paris, LX. 120-124. (Ticks found on horses, regarded as probable carriers.)
- (1906 b), Sur l'existence de la piropasmosse équine en Algérie. *Bull. Soc. centr. de méd. vét.*, Paris, LX. 379-380. (Short abstract, same as preceding.)
- Rogers, B. A. (1892), Texas fever and ticks. *Daniel's Texas Med. Journ.*, Austin, vii. 357-360.
- Rohr, C. J. (1909), *Estudos sobre Ixódidos do Brasil*. (Trabalho do Instituto Oswaldo Cruz). Rio de Janeiro: Gomes, Imaão & C., Rua Assembléa 32. 220 pp., 5 Plates (photographs), 30 Text-Figures (mostly original).

- Rollinat, R., and Trouessart, E.** (1897), Sur la reproduction des chauves-souris. II. Les Rhinolophes et Note sur leur parasites épizoïques. *Mém. de la Soc. Zool. de France*, x, 114-138. (See re Ixodidae, pp. 136, 137.)
- Roncisvalle, D. M.** (1891), Sui fenomeni morbosi prodotti nell' uomo da un ixodide denominato *Hyalomma aegyptium*, L. Nota preliminare. *Boll. mens. Accad. Gioenia di sc. nat. in Catania*, n. s. (17), 2-4.
- (1899), Intorno agli effetti morbosi degli Ixodidi sull' uomo. *Atti dell' Accad. Gioenia di Sc. Nat. in Catania*, LXXVI. (Cited by Perroncito (1901, p. 562) re ticks attacking man. Also cit. in *Entomol. News*, Philadelphia, xi, p. 506.)
- Rosenhauer, W. G.** (1856), *Thiere Andalusiens*, pp. 412-413. (Misquoted by Neumann as by C. L. Koch.)
- Ross, P. H., and Milne, A. D.** (26. XI. 1904), Tick Fever. *Brit. Med. Journ.*, II, 1453-1454. (Discovery of *Spirochaetue* in relapsing fever in Uganda by Drs Ross and Hodges; all of the patients attributed the disease to tick bites. Ticks collected by Milne in camps where cases occurred, were determined as *O. moubata*.)
- Rudow, F.** (1870), Einige neue Ixoden. *Zeitschr. f. d. ges. Naturwiss.*, XXXV, 14.
- Ruthe**, see **Troschel**.
- Sabbatani, L.** (1898), Fermento anticoagulante dell' *Ixodes ricinus*. *Gior. d. r. Accad. di med. di Torino*, 4 s., IV, 380-395. (Also, transl. (same title). *Arch. ital. de biol.*, Turin, 1899, XXXI, 37-53.)
- Saenz de la Calada, C.** (1904), Piroplasmosis del caballo. *Gac. de med. zool.*, Madrid, 4 época, XXVIII, 19-25. (Inaccessible.)
- Salimbeni, A.** see **Marchoux**.
- Sallé, A.** (1845), [*Argas talaje*]. *Mag. de zool.*, Paris, 2 s., VII, 2 pp.
- (1849), *Rev. Mag. Zool.*, p. 342. (Description of sufferings from *Argas (Ornithodoros) talaje*, translated in Murray, A., 1877, pp. 183, 184.)
- Salles** (1902), La tique et le porriogo ou dartre ulcéreuse du bœuf. *Progrès vét.* (10), p. 193. (*Ixodes reticulatus*.)
- Salmon, D. E.** (1884), Geographical distribution of Southern cattle fever. In *Report of the Chief of the Bureau of Animal Industry. U. S. Comm. Agr.*, Report, 1884, pp. 252-258, Pls. 3. (Discusses occurrence of fever in Va., N. C., S. C., Ga., Tenn. Maps show limits east but not west of Mississippi river. Cit. Hunter and Hooker, 1907, p. 68.)
- (1895-6), Texas Fever in Australia and the United States. *U. S. Dep't of Agric.*, 12th and 13th Annual Report of the Bureau of Animal Industry. (Pp. 86-95; contains full extracts from Pound's report on the subject. See also pp. 109, 318 regarding Texas Fever, dipping cattle and *Boophilus* in the United States.)
- (1900), Experiments to determine the cause and dissemination of Texas fever. *American microscop. Journ.*, XXI, 199-203. [Hatching of eggs of *Boophilus annulatus* of first importance.]
- (1904), Relations of Federal Government to control of contagious disease of animals. *U. S. Dep't Agric.*, Yearbook, 1903, pp. 491-506; pp. 505 et seq. (*Boophilus annulatus*.)

- Salmon, D. E., and Smith, T. (1892)**, Southern cattle fever (Texas fever). *U. S. Dep't Agric., Bur. Animal Industry, special report on diseases of cattle and cattle feeding*, pp. 428-438, Pls. 42-44. (H. and H. bibl.)
- Texas fever, or Southern cattle fever. *U. S. Dep't Agric., Bur. Animal Industry*, Circ. 69, pp. 1-13. (Reprint from special report on diseases of cattle, revised, 1904, by Salmon and Mohler. Cit. Hunter and Hooker, 1907.)
- Salmon, D. E., and Stiles, C. W. (1901)**, The cattle ticks (Ixodoidea) of the United States. *17th Annual Report of the Bureau of Animal Industry, U. S. Dep't of Agric., Washington*, pp. 380-488, Figs. 42-257. (Bibliography.)
- Sambon, L. W. (1900)**, Ticks and Tick Fevers. *Journ. of Tropical Med.*, 11, 217-223.
- (1907, also 1909), The spotted fever of the Rocky Mountains. *Allbutt's Syst. Med.*, London, II, 307-313.
- Sammonicus, Quint. S. (3rd Century, A.D.)**, *de re medica*, ed. 1540, 35. (Citations from Latin original in Pagenstecher, 1861, p. 3, which we translate as follows: p. 185 "the tick (ricinus) is a disgusting insect, called croton by the Greeks, sticking on to cattle, dogs and other animals without moving, when once it has fixed itself, infecting and torturing them acutely." He then quotes Pliny (*q.v.*) regarding the absence of an anus in ticks, etc.)
- Samson, K. (1908)**, Die Eiablage und die Larve der Zecke *Rhipicephalus sanguineus*. *Sitzungsbericht d. Gesellsch. naturf. Freunde*, Berlin.
- (1. 1909), Zur Anatomie von *Ixodes ricinus* L. *Inaug. Dissert. z. Erlang. d. Doktorw. Philos. Fakult.*, Berlin: G. Schade, 35 pp., 6 Text-Figs. (The more complete paper is the following.)
- (1909 a), Zur Anatomie und Biologie von *Ixodes ricinus* L. *Zeitschr. f. wiss. Zool.*, XCIII, 185-236, 4 Plates, 18 Text-Figures. (Important: anatomy, histology, biology.)
- (1909 b), Zur Spermo-histogenese der Zecken. *Sitzungsber. d. Gesellsch. naturf. Freunde*, No. 8, pp. 486-499, Pl. IX, 7 Text-Figs. (Spermatozoa in *I. ricinus* and *O. moubata*.)
- Sánchez, J. (1893)**, Accidentes producidos por las garrapatas. In Sánchez's *Zool. méd. mexic.*, 8º, Mexico, 21.
- Sangalli, G. (1884)**, Reminiscenze del Congresso medico internazionale tenutosi a Copenhagen nel p. p. Agosto. *Rendiconti R. Istituto Lombardo d. Sci. e Lettere*, 2 s., XVII, 823-837. (*Ixodes*, see pp. 830-831.)
- Sant'Anna, J. F.** see Amaral.
- Santorì, F. S.** see Celli.
- Savigny, J. (1826)**, *Description de l'Égypte*. Planches de zoologie. Arachnides, Pl. IX.
- Say, T. (1821)**, An account of the Arachnides of the United States. *Journ. Acad. Nat. Sci.*, Phila., II, 59-83. (Pp. 75-79, describes the following species of *Ixodes*: *annulatus*, *orbiculatus*, *crenatus*, *erraticus*, *variabilis*, *punctulatus*, *scapularis*, *fuscus* (*fuscus*).)
- (1859 posth.), *The complete writings of Thomas Say on the Entomology of North America*. Edited by J. L. Le Conte, with a memoir of the author by G. Ord. In two Vols. New York: Baillière Bros. (Vol. II, pp. 19-22, reprinted descriptions of *Ixodes* spp. given in Say, 1821, *q.v.*)

- Schaudinn, F.** (1904), Generations- und Wirtswechsel bei *Trypanosoma* and *Spirochaete*. *Arb. u. d. Kais. Gesundheitsamte*, Berlin, xx, 387-439, 20 Text-Figs. (P. 428, development of *Karyolysus* in a mite (Milbe) briefly mentioned; it has been since stated by several authors that the "mite" was *I. ricinus*—but I cannot obtain positive information on the subject.)
- Schellack, C.** (18. IV. 1908), Uebertragungsversuche der *Spirochaete gallinarum* durch *Argas reflexus* Fabr. *Centralbl. f. Bakt.*, XLVI, pp. 486-488. (A full account appeared in the following paper.)
- (1909), Versuche zur Uebertragung der Hühnerspirochäten und Rekurrens-spirochäten durch Wanzen und Zecken. *Arb. u. d. Kaiserl. Gesundheitsamte* (Berlin), xxx., pp. 351-362.
- Schlechtendal, D. H. R.** (1891), Ueber das Eierlegen der Ixodes-(Zecken-)Weibchen. *Jahresbericht d. Ver. f. Naturkunde zu Zwickau*, 1891, pp. 11-14. (Very poor description of the process of oviposition in an undetermined species of Ixodid tick of unknown origin, supposedly from Persia.)
- Schlimmer, J. L.** (1874), *Terminologie médico-pharmaceutique et anthropologique française-persane sur les maladies endémiques et particulières les plus intéressantes des habitants de la Perse*. Téhéran. (Extracts cited by Bordier, 1882, p. 132.)
- Schmidt, A.** (1903), Die Zeckenkrankheit der Rinder—Haemoglobinaemia ixodioplasmatica boum—in Deutsch-, Englisch-Ostafrika, und Uganda. *Arch. f. wiss. u. prakt. Tierheilk.*, xxx., 42-101. (Compilation with partial bibl.)
- Schnee** (1908), Ueber das Vorkommen von *Argas* in Deutschland. *Arch. f. Schiffsv. Tropen-Hyg.*, XII, 32.
- Schneidemühl, G.** (1896), *Lehrbuch der Vergleichenden Pathologie und Therapie des Menschen und der Haustiere für Thierärzte, Ärzte und Studierende*, 2. Lief., pp. 209-448, 8°. Leipzig.
- Schrank, P.** (1781), *Enumeratio Insectorum Austriae*, III. 1. (Brief description of ticks. Nothing worth noting, judging from citation in Pagenstecher, 1861, p. 7; vol. and p., but no date, given by Latreille, 1829.)
- Schroeder, E. C.** (1900), A note on the vitality of the Southern cattle tick. *U. S. Dep't Agric., Bur. Animal Industry*, 16th Ann. Report, pp. 41-42.
- (1905), Notes on the cattle tick and Texas Fever. *U. S. Dep't Agric., 22nd Annual Report Bur. Animal Industry*, pp. 49-70. (*Boophilus annulatus*, its biology, effects as a parasite, relation to Texas fever, eradication.)
- Schroeder, E. C., and Cotton, W. E.** (1900), Growing noninfected ticks and afterwards infecting them. *U. S. Dep't Agric., 16th Annual Report, Bureau Animal Industry*, 1899, Washington, pp. 33-41.
- (1905), The persistence of the Texas Fever organism in the blood of Southern Cattle. *U. S. Dep't Agric., 22nd Annual Report of the Bureau of Animal Industry*, Washington, D. C., pp. 71-78. (P. 78, the extermination of the tick recommended as the only remedy.)
- see **Smith, T.**
- Schuberg and Manteufel** (21. I. 1910), Ueber erworbene Immunität gegen Rekurrens bei *Ornithodoros moubata*. *Zeitschr. f. Immunitätsforsch. u. exper. Therap.*, IV, 512-515.
- Schütz**, see **Kossel**.

- Scopoli** (1763), *Entomologia carniolica*, p. 387. (Only describes *Acarus ricinus* from Frisch and Linnaeus as follows: "fusco-ferrugineus, ovatus, macula dorsali subrotunda nitida fusco exarata, lineis depressis obsoletis obliquis quatuor." Citation from Pagenstecher, 1861, p. 6.)
- Seba** (before 1804), *Thesaurus*, Vol. II., Pl. 84, Fig. 3. (Cited by Müller 1831, p. 233, as being the first to record ticks on reptiles: an American snake.)
- Seccombe** (1907), Paspalum for tick country. *Queensland Agric. Journ.*, Brisbane, XIX., p. 142.
- Senger, J. C.** (1897), Killing ticks on cattle. *Rural New Yorker*, LVI. (2451), p. 37. (S. and S. bibl.)
- Shadbolt, G.** (1845), On a British species of *Ixodes* found upon cattle. *Ann. a. Magaz. of Nat. Hist.*, xvi. 64. (Occurrence of ticks, species not stated, in large numbers on cattle on borders of Epping Forest in Essex. Nothing worth noting.)
- Shaw, G.** (1806), *General Zoology*, vi. ii., Insecta, p. 465. (Citations from this author in Pagenstecher, 1861, p. 8. Shaw refers to "*Acarus ricinus* or tick." Nothing worth noting.)
- Shibayama, G., and Miyajima, K.** (1906), *Piroplasma* in Japan. (Japanese text.) *Saikingaku Zasshi*, Tokio, (114), p. 25. (Inaccessible.)
- Shipley, A. E.** (VIII. 1909), The ectoparasites of the red grouse (*Lagopus scoticus*). *Proc. Zool. Soc. London*, pp. 309-334, Pls. XXXV-XLVII, reprint. (P. 326, brief mention of *I. ricinus* and other ticks; nothing original except the statement that gamekeepers in Ross-shire attribute death of young black-game to attacks of ticks—this requires investigation.)
- Siebold (?)**, *Zeitschr. f. Physiol.*, iv. 189, Pl. XVI, Fig. 7 c. (Cited by Heller, 1858, p. 308, re *Ixodes* anatomy. Inaccessible.)
- Siebold, C. Th. von, and Stannius, H.** (1846-8), *Lehrb. der vergleich. Anat.*, 2 vols.: xiv+679 pp., xii+482 pp., Berlin. (Vol. I. by von Siebold, 1848; p. 528, vide description of salivary glands, intestine and malpighian tubes etc. in *Ixodes*.)
- Siebold, K. T. E. von** (1850), "Parasiten," in *Handwörterb. d. Physiol. mit Rücksicht auf physiol. Path.*, Braunschweig, II. pp. 641-692. (S. and S. bibl.)
- Simon, E.** (1879), *Les Arachnides de France*, Vol. VII.
— see **Fairmaire**.
- Simonds, J. B.** (1865), Observations on parasites and parasitic diseases affecting domesticated animals. *Journ. Royal Agric. Soc.*, (2) I. 33-72. [Ticks, especially *Ixodes ricinus* etc., on animals, and methods of treatment.]
- Simpson, J. C.** (27. IV. 1901), Case of a parasite—*Argas* (or *Ornithodoros*) *megnini* Dugès—in each ear. [With a note by E. G. Wheler, q.v.] *Lancet*, I. 1197-1198, 3 Figs., also: 7 pp., 3 Figs. repr.
- Skinner, B.** (1905), Rats in relation to plague. *Brit. Med. Journ.*, II. 427, 622, 3 Figs. and 1 Map. (*Hyalomma aegyptium*, occurrence on rats in India, ticks determined by Nuttall.)
- Smedley, R. D.** see **Nuttall**.
- Smith, R. G.** (1899), The tick fever parasite. *Proc. Linn. Soc. N. S. Wales*, xxiv. 585-595. [Brief account of piroplasmosis in cattle; a compilation from other authors' writings.]

- Smith, T.** (1893), Die Actiologie der Texasfieberseuche des Rindes. *Centralbl. f. Bakteriöl.*, xiii. 511-527. (Cit. Nuttall, 1899.)
- (8. VII. 1899), On the Aetiology of Texas Cattle Fever, with special reference to recent Hypotheses concerning the transmission of Malaria. *New York Med. Journ.*, 17 pp. reprint.
- see **Salmon**.
- Smith, T., and Kilborne, F. L.** (1892), Texas fever and cattle ticks. (Letter to editors, dated Apr. 8th.) *Veterinarian*, London, LXV. 4 s., xxxviii. 351-352.
- (1893), Investigations into the Nature, Causation and Prevention of Texas or Southern Cattle Fever. *Bulletin No. 1, Bureau of Animal Industry, U. S. Dep't of Agricult.*, Washington, 301 pp., 10 Coloured Plates. (Cit. Nuttall, 1899.)
- Smith, T., Kilborne, F. L., and Schroeder, E. C.** (1893), Additional observations on Texas cattle fever. *Ibid.*, Bull. No. 3, pp. 67-72.
- Sonnenberg, E.** (1908), Die Piroplasmosis der Schafe und ihre Beziehung zur sogenannten Bradsot der Schafe. *Berl. tierärztl. Wochenschr.*, (35), 609-610.
- Soulié**, see **Claude**.
- Spicer, W. W.** (1874a), The Canterbury tick. *Science Gossip*, LXXIV. p. 185.
- (1874b), *Ibid.*, p. 209.
- Spix and Martius** (?), *Reise in Brasilien*, i. 173. (The ticks, called "carabatos," are a great plague; they cluster in vast numbers on vegetation and attack passing persons. Recommends brandy, tobacco infusion or tobacco smoke as remedies. Cit. Pagenstecher, 1861, p. 7.)
- Spreull, J.** see **Dixon**.
- Squier** (?), *Staaten von Centralamerika*. (Cited, without further reference, by Pagenstecher, 1861, p. 7, as stating that it is the custom in Honduras to remove ticks from the skin by passing a ball of soft wax over them.)
- Starcovici, C.** (1893), Bemerkungen über den durch Babes entdeckten Blutparasiten und die durch denselben hervorgebrachten Krankheiten, die seuchenhafte Hämoglobinurie des Rindes (Babes), das Texasfieber (Th. Smith) und der Cârceag der Schafe (Babes). *Centralbl. f. Bakteriöl. etc.*, Jena, xiv. 1-8. (A review, brief mention only of ticks.)
- Steddom, R. P.** (1906), The first season's work for the eradication of the cattle tick. *23rd Ann. Rep. Bur. Animal Indust., U. S. Dep't Agric.*, Washington, 101-112.
- (1907), Report of cooperative work on tick eradication. *Bull. 97, Bur. Animal Indust., U. S. Dep't Agric.*, Washington, 12-20.
- (1908), How to get rid of cattle ticks. *Circ. 97 (Revised) of the Bur. of Animal Industry. Breeder's Gaz.*, Chicago, LIV., p. 180.
- Stephens, J. W. W.** (1907), Ticks as transmitters of disease. *Nature*, London, LXXV. 523-524.
- Stewart, J. D.** (2. XI. 1906), The cattle tick: tick infestation, tick fever, and preventive measures. *Agric. Gazette of New South Wales*, xvii. 947-952, 1155-1157.
- (1907), The cattle tick: tick infestation, tick fever, preventive measures, and treatment. (Continuation of 1906.) *Ibidem*, xviii. 561-570, 6 Figs., 651-655, 1 Pl., Figs. 1-12.

- Stiles, C. W.** (1892), The histology of *Boophilus*. (Author's abstract.) *Proc. Entomol. Soc. Washington*, II. 303-304. [Anatomy, abstract of few lines.]
- (1904), Preliminary report upon a zoological investigation into the cause, transmission, and source of the so-called "spotted fever" of the Rocky Mountains. (Letter to Surgeon-General Wyman, dated July 22nd.) *Pub. Health Rep., U. S. Pub. Health and Mar. Hosp. Serv.*, Washington, XIX. 1649-1650.
- (1905), A zoological investigation into the cause, transmission, and source of Rocky Mountain "spotted fever." *U. S. Treasury Dep't, Public Health and Marine-Hospital Service, Hygienic Laboratory*, Bull. 20, pp. 1-121.
- (1908), The common tick (*Dermacentor andersoni*) of the Bitter Root Valley. *Publ. Health Rep., U. S. Publ. Health and Mar. Hosp. Service*, Washington, XXIII. 949.
- (VIII. 1910), The taxonomic value of the microscopic structure of the stigmal plates in the tick genus *Dermacentor*. *Treasury Dep't, Publ. Health and Marine Hosp. Service of the United States. Hygienic Laboratory Bulletin*, No. 62, Washington, D. C. 72 pp., Plates I-XLIII. (Important.)
- see **Salmon and Stiles**.
- Stiles, C. W., and Hassall, A.** (26. III. 1901). Notes on parasites, 55-57. A pupal-like stage in the development of the spinose ear tick (*Ornithodoros megnini*) of cattle. *U. S. Dep't of Agr., Bureau of Animal Industry, Circular No. 34*, 2 pp., repr.
- (1901 b), Notes on Parasites 56: *Boophilus australis* present in Cuba, Porto Rico, Venezuela, and India. *Circ. No. 34, Bureau of Animal Industry, U. S. Dep't Agr.*, Washington, pp. 2-3.
- (1902 et seq.), *Index Catalogue of Medical and Veterinary Zoology*. Issued by the U. S. Dep't of Agric., Bureau of Animal Industry, Washington, D. C. (still appearing in parts).
- Stockman, S.** (1903), Rinderpest and redwater in cattle. *Vet. Rec.*, London, xv. 634-637.
- (1904 a), Some points to be considered in connection with Rhodesian redwater. *Transvaal Agric. Journ.*, III. 87-94.
- (1904 b), Rhodesian redwater, vel East African coast fever, vel tropical piroplasmosis. *Report of the Transvaal Dep't of Agric.*, 1903 to 1904, pp. 40-66.
- (1905), Report of the work of the Veterinary Division. *Transvaal Dep't of Agric. Annual Report for the Year 1903-4*. Pretoria: Gov. Printing and Stat. Off., pp. 37 et seq. (P. 41 East Coast Fever transmitted by *Rhipicephalus appendiculatus* and ? *R. simus*, p. 48 dipping cattle to destroy ticks, p. 55 ticks in relation to outbreaks, p. 63 grass burning.)
- (VIII. 1908), Redwater in England and its carriers. *Proc. National Veterin. Assoc.* (London.) Reprint 13 pp. (4 temperature charts). (Notes occurrence of Redwater in cattle and the presence of *Ixodes ricinus* in England; transmitted Redwater experimentally by means of *Haemaphysalis punctata* adults, fed as nymphs on infected cattle.)
- see **Theiler**.
- Stoll, O.** (1886-1893), Arachnida Acaridia. *Biologia Centrali-Americana, Zool.*, London: pp. v-xxi, 1-55, 21 Plates. (Re Ticks see pp. viii-ix, xix, 18-24, Plates XII-XIV.)

- Strebor** (1906), [Aloes and Ticks]. *Agric. Journ.*, Cape Town, xxviii, p. 123. (Letter of 5 lines to editor; harmless decoction of aloes said to keep ticks temporarily off horses.)
- Strickland, C.** see **Nuttall**.
- Sulzer** (1776), *Abgekürzte Geschichte der Insekten*, p. 415. (Without importance. Cited in Pagenstecher, 1861, p. 6, as not knowing if his Fig. 7 in Part 29 represents *reduvius* or *marginatus*. The figure shows festoons, consequently it is not an *Ixodes*. In 1777, in the author's article "Milbe" in *Neuer Schauplatz der Natur*, v. 658, *reduvius* and *ricinus* are vaguely distinguished by differences in colour.)
- Sundevall, C. J.** (1833), *Conspectus Arachnidarum* Lund. In *Acad. Carolina*. (Michael, 1883, p. 34, gives Sundevall's classification.)
- Supino, F.** (1897), Nuovi Ixodes della Birmania. (Nota preventiva.) *Atti Soc. Veneto-Trent. di Sci. Nat.*, 2 s., iii. fasc. i. pp. 230-238. (Preliminary note to the following.)
- (dat. iv. 1897), Considerazioni sulla sistematica degli Ixodes. *Atti Soc. Veneto-Trent. di Sci. Nat.*, 2 s., 1898, iii. 241-252, Pls. XII-XIII, Figs. 1-23.
- Suworow, E. K.** (1906), Predvaritelnoe soobshchenie ob anatomii *Ixodes reduvius*. (Russian text.) *Trav. Soc. imp. d. nat. de St Pétersb.*, xxxvii. 310-315, 1 Fig. Résumé in German, 366-367.
- Sweet, G.** (viii. 1910), A species of *Argas*, apparently new to Science. *Proc. Roy. Soc. Victoria*, xxiii. n.s., Pt. 1, pp. 15-18, Pl. II (*Argas victoriensis*, n.sp. founded on a larva!).
- Szovits** (1828), Ueber die Wanzen von Miana. *Forriep. Not.*, xxii. No. 478. (*A. persicus*, cit. Huber, bibl., 1899, p. 16.)
- Szoyka, G.** (1903), A kutyák piroplasmosisa és haemoglobinaemiája. *Allat. lapok*, Budapest, xxvi. 1-14.
- (1903), Piroplasmosis und Haemoglobinaemie der Hunde. *Deutsche tierärztl. Wochenschr.*, Hannover, xi. 234-236.
- Taruffi** (?), (Cited by Perroncito, 1901, p. 564, as describing a case, reported by Cosson in 1856, of a man who suffered from the effects of the bite of *Ixodes ricinus*. No reference given.)
- Taschenberg, E. L.** (1873), Mitteilung über die einheimische Saumzecke. *Zeitschr. f. d. gesamt. Naturwiss.*, xli. 381-383. (Cited by Brandes, 1897.)
- (1874), The Canterbury tick (*Argas reflexus*). *Science Gossip*, 1874, p. 171.
- (1880), Die Schnabelkerfe, flügellosen Parasiten, und als Anhang einiges Ungeziefer, welches nicht zu den Insekten gehört. *Praktische Insektenkunde*. 5. Theil. 238 pp., 43 Figs. Bremen: M. Heinsius. (Ticks: pp. 150-153; describes *Ixodes spec.*, *Argas reflexus*, and gives 2 small original figures; the large "adult" *Argas* (!) has only 6 legs.)
- (1900), *Die Insekten, Tausendfüssler und Spinnen*, being vol. ix. of Brehm's *Thierleben*. Leipzig u. Wien. 764 pp. (Ixodoidea; pp. 733-741.)
- Taschenberg, O.** (?), Einiges über nützliche und schädliche Thiere. *Die Natur*, xlv. (Cited by Lucas, 1898, who says the paper is interesting re poison of *Argas*; inaccessible.)

Bibliography of the Ixodoidea TER-THE

- Terrenzi, G.** (1893-1894), Sopra un Acaro (*Argas reflexus*) trovato per la prima volta in Italia parassito sull' uomo. *Riv. ital. Sci. Nat.*, xiv. 73-76, 97, 98.
- Theiler, A.** (1903 a), Equine malaria and its sequelae. *Journ. Comp. Path. and Therap.*, Edinburgh and London, xvi. 97-120. (Ticks suspected as carriers, no clear evidence as yet.)
- (1903 b), Les piroplasmoses dans l'Afrique australe. *Rev. vet.*, Toulouse, lx. 625-639, 670-682.
- (1903 c), Die Piroplasmen in Süd-Afrika. *Fortschr. d. Vet. Hyg.*, Berlin, i. 133-147.
- (1903-1904), The Rhodesian tick fever. *Transvaal Agric. Journ.* (1903), i. 93-110, Pl. XV (Pp. 106-108, experiments with *Rhipicephalus shipleyi* Nn.); (1904), ii. 421-438.
- (1904 a), Rhodesian tick fever. *Rep. S. African Assoc. Adv. Sci.*, pp. 201-220.
- (1904 b), The transmission of East Coast fever by ticks. *Transvaal Agric. Journ.*, iii. 71-86.
- (1904 c), East Coast fever. *Journ. R. Army Med. Corps*, London, iii. 599-620. (Ticks vide pp. 602-620.)
- (1904 d), Spirillosis of cattle. *Journ. Compar. Path. and Therap.*, Edinburgh and London, xvii. 47-55. (Ticks suspected carriers.)
- (1904 e), Die Piroplasmosis des Maulthieres und des Esels. *Zeitschr. f. Thiermed.*, Jena, viii. 382-388. Reprint. (P. 387 spread attributed to ticks of undetermined species.)
- (1904-5), Experimentelle Uebertragung der tropischen Piroplasmosis der Rinder mittels Zecken. *Fortschr. d. Veterinär-Hygiene*, Berlin, ii. 257-268.
- (1905 a), Report of the Government Veterinary Bacteriologist. *Transvaal Dep't of Agric., Annual Report for the Year 1903-4*. Pretoria: Gov't Printing and Stat. Off. (P. 135-150 the transmission of East Coast Fever by ticks, experiments with different species, bionomics of *Boophilus decoloratus*, *Hyalomma aegyptium*, *Rhipicephalus appendiculatus*, *R. evertsi*, *R. simus*, *Amblyomma hebraeum*; pp. 190-202 heart-water in cattle and *A. hebraeum*.)
- (1905 b), Transmission and inoculability of *Spirillum theileri* Laveran. *Proc. Roy. Soc. London*, s. B., lxxvi. 504-6. See also *Transvaal Dep't Agric., Ann. Rep. Dir. Agric.*, 1904-5 (1906), pp. 123-151.
- (1905 c), Maladies des troupeaux dans l'Afrique du Sud. *Bull. Inst. Pasteur*, iii. 617, 657.
- (1905 d), Notes on Piroplasmosis of the horse, the mule, and the donkey. *Ann. Rep. Govt. Vet. Bacteriol.*, Pretoria, 1903-1904, 95-98.
- (VII. 1905), Further notes on piroplasmosis of the horse, mule, and donkey. *Transvaal Agric. Journ.*, iii. 706-716, (also) *Journ. Compar. Path. and Therap.*, xviii. 229-239.
- (1906), Report of the Gov't Veter. Bacteriologist. *Transvaal Dep't of Agric., Annual Report of the Director of Agriculture for the Year 1904-5*. (P. 88 time an area remains infected with East Coast Fever; prevalent species of ticks: *H. aegyptium*, *A. hebraeum*, *R. simus*, *R. evertsi*; p. 94 piroplasmosis in equines; p. 123 transmission of spirochaetosis in cattle by *B. decoloratus*.)
- (XII. 1906), Transmission of equine piroplasmosis by ticks in South Africa. *Journ. Compar. Pathol. and Therap.*, xix. 283-292.

- Theiler, A.** (1907), Transmission of equine piroplasmosis by ticks in South Africa. *Transvaal Dep't of Agric., Report of the Gov't Veter. Bacteriologist for the Year 1905-6*. Pp. 10, 105-116. Pretoria: Gov't Printing and Stat. Off. (Experiments with *Boophilus decoloratus* and *Rhipicephalus evertsi*, the first negative, the second positive.)
- (1907), Further notes on *Piroplasma mutans*—a new species of *Piroplasma* in South African cattle. Part 2. *Journ. Compar. Path. and Therap.*, Edinburgh and London, xx. 1-18.
- (1908), *Transvaal Dep't of Agric., Report of the Gov't Veter. Bacteriologist for the Year 1906-7*. Pretoria: Gov't Printing and Stat. Off. (Pp. 45 et seq. Further notes on *Piroplasma mutans*—a new species of *Piroplasma* in South African cattle. Experiments with *Boophilus decoloratus*. Pp. 70 et seq. Further transmission experiments with East Coast Fever: negative with *B. decoloratus* and *A. hebraeum*, positive with *R. appendiculatus*, *R. evertsi*, *R. capensis*, *R. simus*.)
- (1908 a), Experiments with English and South African redwater. *Transvaal Agric. Journ.*, Pretoria, vi. 534-543.
- (1908 b), Weitere Versuche, das Ostküstenfieber durch Zecken zu übertragen. *Zeitschr. f. Infektionskr. etc. d. Haustiere*, Berlin, iv. 265-278.
- (1908 c), The influence of cold on ticks and *Piroplasma parvum*. *Bull. Soc. de path. exot.*, Paris, i. 451-454. (Vide 1909 a.)
- (I. 1908), The prevention and eradication of stock diseases in South Africa. *Transvaal Agric. Journ.*, vi. 217-233. (Semi-popular article, refers to redwater etc. and mentions ticks.)
- (IV. 1908), Further transmission experiments with East Coast Fever. *Transvaal Agric. Journ.*, vi. 413-425 (same as in Theiler, 1908 and 1908 b).
- (1909 a), The influence of cold on ticks and *Piroplasma parvum*. *Transvaal Dep't of Agric., Report of the Gov't Veter. Bacteriologist for the Year 1907-8*. Pp. 10-12. Pretoria: Gov't Printing and Stat. Off. (Experiments with *Rhipicephalus appendiculatus*, *R. evertsi* and *Boophilus decoloratus* in relation to East Coast Fever of cattle.)
- (1909 b), Transmission des spirilles et des piroplasmes par différentes espèces de tiques. *Bull. Soc. path. exot.*, Paris, ii. 293.
- (1909 c), Diseases, ticks, and their eradication. *Transvaal Agric. Journ.*, Pretoria, vii. 685-699.
- Theiler, A., and Gray, E.** (1906-1907), Veterinary hygienic principles applicable to stock in South Africa. *Transvaal Agric. Journ.*, iv.-v. (Article of a general character.)
- Theiler, A., and Stockman, S.** (1904), Some observations and experiments in connection with tropical bovine piroplasmosis (East Coast fever or Rhodesian redwater). *Journ. Compar. Path. and Therap.*, Edinburgh and London, xvii. 193-203. (Field experiments, dipping, influence of season.)
- (1905), Further experiments to determine how long an area remains infected with East Coast Fever. *Journ. Compar. Path. and Therap.*, xviii. 163-171.
- Theobald, F. V.** (1905), Flies and Ticks as agents in the distribution of disease. *Proc. Ass. Econ. Biol.*, i. 1-10.

- Tholozan, J. D.** (1882), Des phénomènes morbides produits par la piqure des parasites voisins des Ixodes, les Argas de Perse. *Mém. Soc. Biol.*, p. 15. (*A. persicus*, cit. Huber, bibl., 1899, p. 17.)
- Thorell, T.** (1882), Descrizione di alcuni Araenida inferiori dell' Arcipelago Malese. *Annali del Museo civico di St. Nat. di Genova*, xviii. 62, Pl. VI, Figs. 40-45. (*Haemaphysalis papuanu* Thorell.)
- Thurow, E. W.** (1891), Ticks from Texas. (Letter to editors, dated Aug. 22nd, 1890.) *Insect Life*, Washington, iii., p. 413.
- Tidswell, F.** (1899), *Some further Observations on protective-inoculation against Tick-fever.* Sydney: Dep't of Agriculture, N. S. W., Misc. Pub. No. 321, 16 pp.
- Tiraboschi, C.** (1904), Les rats, les souris et leurs parasites cutanés dans leurs rapports avec la propagation de la peste bubonique. *Arch. de Parasitologie*, viii. 161-349, 72 figs. (*Ixodidae*, pp. 334-337, 4 Figs. nothing original.)
- Todd, J. L.** see **Dutton.**
- Tokishige, H.** see **Janson.**
- Tonnel** (14. XI. 1906), *L'Argas reflexus* parasite de l'homme. *Semaine Méd.*, No. 46, p. 552. (Abstract of paper which appeared in a recent number of *L'Echo méd. du Nord.*)
- Townsend, C. H. T.** (1893), Ticks in the ears of horses. *Journ. N.Y. Entomol. Soc.*, i. pp. 49-52. (*O. megnini*.)
- (1894), Ticks in Jamaica. Museum Notes No. 44. *U. S. Dep't Agr.*, vi. 58. [*Hyalomma dissimilis* Koch, a plague there; suggests means of extermination by enemies.]
- (1894-5), Names of Jamaican Ticks and their hosts. *Journ. Inst. Jamaica*, i. 380.
- (1895), Note on the chicken tick (*Argas americanus* Pack.). *Insect Life*, Washington, v. 417-418.
- Traill** (1838), Notice of *Argas persicus*, a species of bug, found in Mianneh, in Persia, and reported to be poisonous. (Title only.) *Rep. Brit. Ass. Adv. Sc.*, London (7th Meet., Liverpool, Sept., 1837), vi. Tr. of Sect., p. 98.
- Treviranus, G. R.** (1831), Ueber den Bau der Nigua (*Acarus americanus* L., *Acarus nigua* De Geer). *Zeitschr. f. Physiologie*. Heidelberg and Leipzig, iv. pp. 185-191, Taf. xv., xvi. (S. and S. bibl.)
- Troschel and Ruthe** (1859), *Lehrbuch der Zoologie*, p. 257. (Family *Ricini* includes Argasidae and Ixodidae; they follow C. L. Koch's classification. Brief reference. Cit. Pagenstecher, 1861, p. 16.)
- Trouessart, E. L.** (1891 and 1892), Considérations générales sur la classification des Acariens, suivies d'un essai de classification nouvelle. *Revue des sci. nat. de l'ouest*, Paris, i. pp. 289-308; ii. pp. 20-54. (S. and S. bibl.)
- (ca. 1895), *Les parasites des habitations humaines*, 168 pp., 53 Figs. Paris: Masson. (Ticks: pp. 122, 123, Fig. 50; little about ticks, and nothing original.)
- see **Berlese**, see **Rollinat.**
- Tucker, G.** (1908), Ticks on dogs. *Queensland Agric. Journ.*, Brisbane, xx. p. 230.
- Urich, F. W.** (1893), Determination of a Trinidad Tick. *Trinidad Field Nat. Club*, i. 268.

- Utility** (1899), The poultry tick. *The Agric. Gaz., Tasmania*, vi. p. 185. (S. and S. bibl. Inaccessible.)
- Vallée**, see **Laveran**.
- Vallot, N.** (1801), Observation sur les effets de la piqûre d'un insecte connu vulgairement au département de la Côte-d'Or sous le nom de pou de bois. *Rec. périod. soc. de méd. de Paris*, xi. 264-271. (Inaccessible. Cit. bibl. Nuttall, 1899.)
- Varro, M. Terentius** (116-27 B.C.), *De rustica* lib. II. de re pecuaria cap. ix. 16, p. 248, ed. Hallens, 1730 (Latin passages cited by Pagenstecher, 1861, p. 3). Recommends the inunction of the ears and toes of dogs, "because flies, ticks (*ricini*) and fleas" produce sores in these situations. Hallens defines *ricinus* as a dog-louse, sheep-louse or cow-tick (Kuhtecke).
- Verrill, A. E.** (1870), The external parasites of domestic animals: Their effect and remedies. *Fourth Annual Report of the Secretary of the Connecticut Board of Agriculture* (1869-70), 1870, pp. 72-122, Figs. 1-47. (S. and S. bibl.)
- Vincenheller, W. G.** (1906), The cattle tick in Washington and Benton counties. *Ark. Agr. Exp. Sta., Bull.* 90, pp. 131-141.
- Vogt** (1869), "Nedeias Amt" (cited by Nuttall, 1899, p. 43, after Johannessen, 1885). (*Ixodes ricinus*, effects of bite on man.)
- Voigt, F. S.** (1838), *Lehrbuch der Zoologie*, iv. 179. (Defines genus *Ixodes* (*ricinus*), other matters briefly mentioned. Cit. Pagenstecher, 1861, p. 11.)
- Wagner, E.** (1876), *Manual of General Pathology*, translated from the sixth German edition by John van Dyun and E. C. Seguin, pp. x+728, 8°, New York, Wm. Wood and Co. (Brief mention of ticks.)
- Wagner, J.** (1892), Zur Entwicklungsgeschichte der Milben. Furchung des Eies, Entstehung der Keimblätter und Entwicklung der Extremitäten bei *Ixodes*. *Zool. Anzeiger*, xv. 316.
- (1894), Die Embrionalentwicklung von *Ixodes calcaratus* Bir. *Tradui St Petersb. Obsch.*, xxiv. 214. *Travaux de la Soc. d. naturalistes de St Pétersb.*, xxiv., Livr. 2.
- Wagner, R.** (1841), *Icones Zootomicæ*. Handatlas zur vergleichenden Anatomie. 35 Tafeln mit 1039 Figuren. Leipzig: Leopold Voss. [Gives figures (XII, XIII, Plate 25) of *Ixodes plumbeus* and its gut after Dugès (1834c, Plate 7).]
- Walckenaer, C. A. de, and Gervais, P.** (1837-47), *Histoire naturelle des Insectes* (Suites à Buffon). Aptères. 4 vols., 52 Pls. Paris: Roret. (First work on general classification of *Aptera*. Aptères: pp. 234-251.)
- Wallace, R.** (1908), Report on tick, redwater, or Texas fever in cattle (*Piroplasma bigeminum* or *P. bovis*) its cause, treatment, and prevention. Edinburgh: Oliver and Boyd, 30 pp., 5 Figs. (Compiled from papers by other authors. Constitutes a Report to the Agent-General for Queensland.)
- Walsh, B. D., and Riley, C. V.** (1868), Ticks and Texas Fever. *American Entomologist*, i. 28. (S. and S. bibl.)
- Warburton, C.** (vi. 1907), The Ticks infesting Domesticated Animals in India. *Imperial Department of Agriculture in India, Bull. No. 6*, Calcutta, 13 pp., 15 Figs.

Bibliography of the Ixodoidea WAR-WEL

- Warburton, C.** (4. VII. 1907), Notes on Ticks. *Journ. Economic Biol.*, II. 89-95, Pl. VII.
- (7. IV. 1908), On some new and obscure species of the genus *Haemaphysalis* of the Ixodidae. *Proc. Cambr. Philos. Soc.*, XIV., 508-519, 11 Figs.
- (XII. 1910), On two collections of Indian Ticks. *Parasitology*, III. 395-407, 10 Figs.
- see **Nuttall**.
- Warburton, C., and Nuttall, G. H. F.** (VI. 1909), On new species of Ixodidae, with a note on abnormalities observed in Ticks. *Parasitology*, II. 57-76, 26 Text-figures.
- Ward, H. B.** (1900a), The ticks of Nebraska. *Ann. Rep't Nebraska State Board of Agric.*, 1899; also as "Studies from the Zoological Lab. Univ. of Nebraska," pp. 193-205 (repr.), Figs. 1-6.
- (1900b), Arachnida. *Wood's Refer. Handb. of the Med. Sci.* Revised edition, I. 428-437, Figs. 243-260.
- Weber**, see **Kossel**.
- Webster, F. M.** (1893), Ticks on chickens. *Ohio Farmer*, Cleveland, LXXXIV. (8), p. 149. (S. and S. bibl. Inaccessible.)
- Weed, C. M.** (1888), A chicken tick. *Prairie Farmer*, LX. (1), Jan. 7, p. 3. (S. and S. bibl. Inaccessible.)
- Weichselbaum, A.** (1898), Parasitologie. *Handbuch der Hygiene*, Jena, IX. (2 Lief.), pp. x + 63-336, 78 Figs. (S. and S. bibl.)
- Wellman, F. C.** (1905a), Case of relapsing fever, with remarks on its occurrence in the tropics and its relation to tick fever. *Journ. Trop. Med.*, London, VIII. 97-99.
- (1905b), Relapsing fever; its occurrence in the tropics and its relation to tick fever in Africa. *American Medicine*, Phila., x. 151-155.
- (1905c), Notes on the Tropical Diseases of the Angola Highlands. *The Amer. Soc. of Trop. Med.*, vol. I. 1904-1905, reprinted from: *New York Med. Journ. and Philad. Med. Journ.* for Aug. 12, 19, 26, and Sept. 2, 1905. 13 Figs., 49 pp., reprint.
- (1906a), Human trypanosomiasis and spirochaetosis in Portuguese South-West Africa, with suggestions for preventing their spread in the Colony. *Journ. of Hygiene*, Cambridge, VI. 237-245.
- (1906b), On a hemipterous insect which preys upon blood-sucking arthropods and which occasionally attacks mammals (man). *Journ. Trop. Med.*, Lond., IX. 97.
- (1906c), Sobre um insecto hemiptero que se alimenta do propagador da Espiriloze humana e ataca ocasionalmente o Homem. *Polytechnia*, vol. III. Nos. 4, 5, 7 pp., 1 Fig., reprint.
- (1906d), A note on the habits of *Ornithodoros moubata* (observations of two gravid females). *Journ. Trop. Med.*, Lond., IX. 215.
- (1906 and 1907), On *Ornithodoros moubata* Murray; a disease-bearing African tick. *Medicine*, Detroit, XII. 493-499, and *Am. Soc. Trop. Med.*, II. bound reprints. 16 pp., 4 Figs.
- (1907), Preliminary notes on some bodies found in ticks—*Ornith. moubata* (Murray)—fed on blood containing embryos of *Filaria perstans* (Manson). *Brit. Med. Journ.*, II. 142.

- Werner** (1906), Zur Epidemiologie des afrikanischen Recurrens. *Arch. f. Schiffsz. u. Tropen-Hyg.*, x. 776-781. (Discusses the epidemiology of spirochaetosis in German E. Africa and its history, with incidental mention of ticks.)
- Westwood, J. O.** (1877), The President's Address. *Proc. Entomol. Soc., London*, 1877, pp. xxxvii-lxxxi. (Refers briefly to the "Blyborough tick" on p. lxiii.)
- Wetzel, J.** (1906), Ueber die Piroplasmose der Hunde. *Zeitschr. Tiermed.*, x. 309, 3 Figs.
- Wheler, E. G.** (1899 and 1900), Classification of British Ticks. *Science Gossip*, 1899, pp. 363-365; 1900, pp. 11, 12, 37-41 (17 Figs.).
- (1899 a), Ticks and "Louping Ill." *Science Gossip*, v. 5-7, 48-50, 106-110, 20 Figs.
- (1899 b), Louping Ill and the Grass Tick. *Journ. Royal Agricult. Soc. of England*, 3 s., x. Reprint 27 pp., 7 Figs. (The same Figs. as in Wheler, 1899.)
- (1901), Note on a remarkable stigmatic organ in the Nymph of *Ornithodoros megnini* (Dugès). (2 Figs. in text.) *Journ. Quekett Microscop. Club*, ser. 2, VIII. 61, 62; also *Journ. New York Entomol. Soc.*, 1893, pp. 49-52, also included under Simpson, 1901, *q.v.*
- (1902), Parasitically inoculated diseases. *Trans. of the Highland and Agr. Soc. of Scotland*, 20 pp., repr.
- (III. 1906), British Ticks. *Journal Agric. Sci.*, Cambridge, i. 400-429, Pls. V-X.
- Wherry, W. B., and Wellman, F. C.** (1909), Ticks on the California Ground Squirrel. *Entom. News*, xx. p. 376.
- White, A.** (1846), List of *Annulosa* (principally Insects) found on the journey of Henry H. Methuen, Esq., see Appendix to H. H. Methuen, *Life in the Wilderness, or Wanderings in South Africa*; p. 363, Pl. II, Fig. 4. (*Argas transgaripepinus*.)
- (1852), Appendix. Journal of voyage in Baffin's Bay, by P. C. Sutherland, II., p. ccx. (Nominal species of *Ixodes*.)
- Wickson, E. J.** (1892), Ticks in the ear. *Pacific Rural Press*, March 19, p. 264. (S. and S. bibl. Inaccessible.)
- Wilkinson**, see **Daniels**.
- Williams** — (1897), Louping Ill. Further researches into the causation and prevention of louping ill, or tumbling in sheep. Ixodic toxæmia. *Princ. and Pract. of Vet. Med.*, p. 568 (see moreover *Trans. Highland Agric. Soc.*, ix.). (Cit. Nuttall, 1899, p. 43.)
- Williams, S. R.** (1905), The Anatomy of the Texas Cattle Fever Tick, *Boophilus annulatus* Say. *Proc. Boston Soc. Nat. Hist.*, xxxii. 313-334, Pl. 18-22.
- Willoughby, C. L.** (1904), Cattle ticks and Texas fever; immunizing experiments in Georgia. *Georgia Agr. Exp. Sta.*, Bull. 64, pp. 143-182, Figs. 9. (H. and H. bibl.)
- Wilson, L. B., and Chowning, W. M.** (1902), Report on the investigation of so-called "Spotted fever." 1st Biennial Report of the Montana State Board of Health from its creation, 15 March 1901 to 30 Nov. 1902, 25 pp. (see Postscript).
- (1. I. 1904), Studies in Pyroplasmosis Hominis ("Spotted Fever" or "Tick Fever" of the Rocky Mountains). *Journ. Infect. Diseases*, i. 31-57, with Map, Charts and Plates I-II.

- Winkler, W.** (1888), Das Herz der Acarinen nebst vergleichenden Bemerkungen über das Herz der Phalangiiden und der Chernetiden. *Arb. a. d. zool. Inst. Wien*, VII. 111–118, Plate IV. [Anatomy of heart of Gamasidae, Ixodidae; *I. ricinus* larval heart, Plate IV., Fig. 4; see p. 114.]
- Wood, C. M.** (1892), The Cattle Tick. *American Nat.*, xxvi. 530.
- Wood, H. C., and Fitz, R. H.** (1897), *The Practice of Medicine*, pp. x+1088, 8°, Philadelphia. (S. and S. bibl.)
- Woods, P. T.** (1898), Insects affecting poultry. *Farm Poultry*, ix. pp. 102, 103, Figs. 19, 20. (S. and S. bibl.)
- Woolley, P. G.** *see* Jobling.
- Wright, C.** (1869), The cattle tick. *American Nat.*, III. 51–52. (S. and S. bibl.)
- Wynne, E. R.** (1896), *Report of investigations at Hughenden on Texas or Tick fever.* (Included (pp. 40–42) in Report by Hunt and Collins (1896), *q.v.* (W.F.C.))
- Yakimoff, W. L.** (1. XII. 1909), Die Zecken und Piroplasmen des Igels. *Centralbl. f. Bakteriol.*, 1 Abt. LII. 472–477, 1 coloured plate. (*Piroplasma*.)
- Zezell, P.** (1780), *Act. succ.* 1780, translated by Kästner (1784) under the title *Neue Abhandlungen aus der Naturlehre*, I. 228. (Refers to *Acari reduvii*, called “festing” in Swedish; case described of tick partly buried in an umbilical tumour, condition known as “*Psydracia ab acaro reduvio*.” Application of oil useless, but brandy effective followed by use of forceps. Cited from Pagenstecher, 1861, p. 7.)
- Zürn, F. A.** (1872), *Die Schmarotzer auf und in dem Körper unserer Haussäugethiere, sowie die durch erstere veranlassten Krankheiten, deren Behandlung und Verhütung.* Theil I: Die thierischen Parasiten. (4 Tafeln.) 236 pp. Weimar: B. F. Voigt. (A very short account of ticks on pp. 37, 38, only 2 species mentioned, and one of these, “*I. ricinus* ♀,” badly figured. No original matter.)
- (1882), *Die Krankheiten des Hausgeflügels*, p. 78. (*A. reflexus*, cit. Huber, bibl., 1889, p. 16.)
- *see* Küchenmeister.

TICKS
A MONOGRAPH OF THE
IXODOIDEA

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London: WILLIAM WESLEY AND SON, 28, ESSEX STREET, STRAND

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TICKS

A MONOGRAPH OF THE IXODOIDEA

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BIBLIOGRAPHY OF THE IXODOIDEA II

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AND L. E. ROBINSON

Cambridge :
at the University Press

1915

Cambridge :

PRINTED BY JOHN CLAY, M.A.

AT THE UNIVERSITY PRESS

PREFACE TO SECOND BIBLIOGRAPHY

SINCE the publication of our first Bibliography (1911) a great many papers have appeared which deal with ticks and their relation to disease. We have, moreover, collected a number of references which were omitted from the previous Bibliography.

We are indebted to Med.-Rath Dr J. Chr. Huber (Memmingen) for sending a number of titles which we should probably have overlooked. We have also to thank Mr W. E. Collinge, M.Sc., for communicating a few titles.

The present Bibliography contains 462 titles.

Our comments on the contents of the papers cited are enclosed in [] brackets.

As stated in the preface to the first Bibliography, we shall be very grateful to readers who may draw our attention to errors or omissions.

G.H.F.N. and L.E.R.

CAMBRIDGE.

2nd October, 1914.

FIRST BIBLIOGRAPHY

ERRATA

- p. 2. **Aragão, H. de B.** (1908) : Add—also in *Brazil-Médico*, Rio de Janeiro, xxii, 111–115.
- p. 2. **Aragão, H. de B.** (22. xi. 1908) : Add—also reprinted in *Trabalhos do Instituto de Manguinhos*, Rio de Janeiro, 7 pp.
- p. 3. **Banks, C. S.** (1904) : Add—also included with Jobling and Wooley (1904) in *Publication No. 14, Dept. Interior. Bur. Govt. Labs. Manila*.
- p. 9. **Canestrini, G.** and **Canestrini, R.** (1882 a) : delete reference as it does not relate to ticks.
- p. 10. for “**Chillada**” read—**Chillida**.
- p. 13. for “**Craybill, H. W.**” read—**Graybill, H. W.**
- p. 16. for “**Du Buysson** (1896)” read—**Du Buysson, H.** (1897), and add, after “*Entomol.*”—LXV. 217–226.
- p. 20. **Fürstenberg, M. H.** (1861) : delete reference as it does not relate to ticks.
- p. 30. **Lavarra, L.** (1906) : delete reference.
- p. 42. **Moufetius, T.** (1634) : Hagen and Burmeister, II. 5, state that the real author is Conrad Gessner.
- p. 45. **Nordenskiöld, E.** (1908) : for “pp. 637–672,” read 637–674.
- p. 51. **Rainbow, W. J.** (1896) : this title was cited from the *Zoological Record*, but Rainbow informed us in 1911 that he is not the author and he suggests that the paper may be by C. J. Pound.
- p. 51. **Rainbow, W. J.** (1904) : delete reference, as a dipterous insect and not a true tick is meant.

BIBLIOGRAPHY OF THE IXODOIDEA. II

- Aders, W. M.** (1. III. 1912), *The blood-sucking Arthropods of Zanzibar harmful to Man or Stock*. Zanzibar: Published by the Zanzibar Gov't. Leaflet No. 2. 13 pp.
- Aitken, C. J. H.** (1905), Illness following a Tick bite. *Brit. Med. Journ.*, i. 412.
- Ajutolo, G. d'** (1899-1900), Dell' *Argas reflexus* Latreille, parassita dell' uomo. *Mem. d. r. Accad. d. Sc. Bologna*, 5 s., VIII. 9.
- Amberg, E.** (1910), *Ornithodoros megnini* Dugès im Gehörgang. *Arch. Ohrenheilkunde*, LXXXII. 273-274, 1 Fig.
- Anderson, T. J.** (1913), Ticks and biting Insects of Nairobi. *Nairobi Laboratory Repts.*, Jan.-June, 1912, III. 19-20.
- Anonymous Authors** (1897-1901), Taubenzecke (*Argas reflexus*) in *Zeitschr. f. Brieftaubenkunde*, Hannover, 1897, p. 787; 1899, p. 297; 1901, p. 264. [Cited by Metz, 1911, p. 4, as appealing for remedies against the tick.]
- Anonymous** (1903), Un cas de parasitisme sur la peau humaine. *Natural. canad.*, xxx. 157-162, 2 Figs.
- (1909), Extincion de la Garrapata. *Boletín del Ministerio de Agricultura*, XI., Num. 1, 2 y 3. Buenos Aires.
- Anonymous** (III. 1914), Ticks in the West Indies. *Agric. News, Barbadoes*, XIII. p. 90. Rev. in *Rev. of Applied Entomol.*, s. B, Med. and Veter., II. 129. [Ticks listed: *Argas persicus*, *Boophilus australis*, *Amblyomma variegatum*, *A. hirtum*, *A. dissimile*, *Rhipicephalus sanguineus*, *Boophilus* sp., *Hyalomma aegyptium*, *H. longirostre*, *Dermacentor nitens*, *Rhipicephalus* sp. Specimens identified by Nuttall and Warburton, for the Imperial Bureau of Entomology.]
- Anonymous** (IV. 1914), The Fowl Tick and Spirochaetosis. *Agric. Gaz., N. S. Wales*, Sydney, XXV. 349-350, 2 Figs. Rev. in *Rev. of Applied Entomol.* s. B, Med. and Veter., II. 116. [*Argas persicus*, compiled account of fowl spirochaetosis.]
- Aragão, H. de B.** (1911), Notas sobre ixódidas brasileiros.—Notes sur les ixodidés du Brésil. (Portuguese and French text and title.) *Memorias d. Inst. Oswaldo Cruz*, III. 145-195, Pls. 11 and 12. [Gives a survey of Brazilian ticks, describes n. spp.: *Ornithodoros rostratus*, *Amblyomma pacui*, *Haemaphysalis leporis* var. *proxima*, figures these; also figures spp. described by author in 1908: *A. braziliense*, *A. mantiquirensis*, *A. parvum*, *A. pseudo concolor*, *H. kochi*; also figures *A. incisum* Nn. and *A. oblongoguttatum* Koch.]
- (1912), Contribuição para a sistematica e biologia dos ixódidas.—Beitrag zur Systematik und Biologie der "Ixodidae." *Mem. d. Inst. Oswaldo Cruz*, IV. 96-119, Pls. II (coloured), III, 6 Text-figs. [Parthenogenesis in ticks: *Amblyomma agamum* n. sp.]

Bibliography of the Ixodoidea. II ARA-BEN

- Aragão, H. de B.** (1913), Nota sobre algumas coleções de carrapatos brasileiros. *Mem. d. Inst. Oswaldo Cruz*, v. 263-270, Pl. 26. [*Amblyomma conspiciuum* n. sp. Pl. 26, Figs. 1-2 coloured, ♂ dorsum and venter, good.]
- Archibald, R. G.**, see **Balfour, A.**
- Austen, E. E.** (1907), *Blood-sucking Flies, Ticks, etc.* 3rd edition. London: British Museum (Natural History). Instructions for Collectors: No. 7. 8vo, 24 pp.
- Balfour, A.** (1908), Spirochaetosis of Sudanese fowls. *Report Wellcome Res. Labs., Khartoum*, III. 38-59, 2 Pls.
- (1911), Spirochaetosis of Sudanese fowls. *4th Rept. Wellcome Research Laboratories, Khartoum*. Vol. A—Medical, 76-107, Pls. III and IV. [*Argas* and *Ornithodoros* mentioned.]
- Balfour, A., and Archibald, R. G.** (1908), Ticks. *Suppl. to 3rd Report Wellcome Research Laboratories, Khartoum*, 199-202. [A review of papers by other authors.]
- Balzer and Poisot** (1906), Accidents causés par la piqure de l'*Argas*. *Bull. Soc. Franç. de Dermat. et Syph.*, Paris, XVII. 344-347. Also: *Ann. de Dermat. et Syph.*, Paris, 1906, 4s., VII. 604-607. Also: *Méd. mod.*, Paris, 1906, XVII. 205.
- Banks, N.** (1912), New American Mites. *Proc. Entom. Soc. Washington*, XIV. 96-99, 2 Pls. [*Otobius* n. gen. pro *Ornithodoros megnini*.]
- Barnard, W. C.** (1905), Arizona ticks. *St. Louis Med. Rev.*, LI. 437.
- Bateman, H. R.**, see **Bruce, D.**
- Baume, Wolf, La** (1910), Zur Naturgeschichte des Holzbocks, *Ixodes ricinus* L. *Prometheus*, XXI. 91-92.
- Baxter, J. M.** (1899), Ta epizoa. *Proc. Nat. Hist. Assoc. Miramichi*, I. 20-23. [*Ixodidae* and other parasites.]
- Bedford, G. A. H.** (1913), A Tick new to South Africa. *Second Report of the Director of Veterinary Research (Department of Agriculture)*, Cape Town, 343-344, Pl. 37, 2 Figs. [*Ornithodoros megnini* Dugès: Occurrence in ears of cows at Vryburg, Bechnanaland and Fauresmith, Orange Free State.]
- Behr, H. H.** (1899), A Californian Tick. *Canadian Entomol.*, XXXI. 229-231. [Effects of bite of *Ornithodoros americanus*; identification of species and remarks by Banks, p. 231.]
- Beloglazov, G. I.** (1914). [Epidemic of Piroplasmosis in Horses in the Government of Tobolsk.] *Arch. Vet. Nauk.*, St. Petersburg, pt. I, 45-56. Rev. in *Review Applied Entomol.*, II, ser. B: Med. and Veter. (VI. 1914), 98. [Equine piroplasmosis in Gov't of Tobolsk occurs usually in spring, runs a severe course. Few ticks found on the horses.]
- Belt, T.** (1874), *The Naturalist in Nicaragua*. London: John Murray. 403 pp., with Map and Illustrations. [Pp. 209-210, "*Ixodes bovis*," attacking man in the plains of Nicaragua in April especially, also attack snakes, iguanas, birds (particularly curassows) and large mammals. The herdsmen remove them from their persons by means of a ball of wax which they carry for the purpose. The author evidently confused several species of ticks under the name "*I. bovis*."]
- Benoit-Bazille, H.** (1910), *L'Argas reflexus* (Fabr.) et son parasitisme chez l'homme. *Mem. Soc. Zool. France*, XXII. 261-280, 3 Pls.

- Bequeart, J., see Rodhain, J.
- Bertolini, G. (1908), Di alcuni parassiti del bestiame dell' Agro Romano e della Sardegna. *N. Ercolania*, Pisa, XIII. 277, 373, 386, 401.
- Bielitz, A. V. (1914), [Piroplasmosis of Horses in Russia], *Arch. Vet. Nauk.* St. Petersburg, Pt. 1, 73-78. Rev. in *Review Applied Entomol.*, II., ser. B: Med. and Veter. (vi. 1914), 98-99. [*Dermacentor reticulatus* and *Hyalomma aegyptium* regarded as carriers; their geographical distribution and that of equine piroplasmosis considered; trypanblue the best remedy.]
- Bielitz, A. W., and Marzinovski, E. J. (1908). [Piroplasmosis of horses in Russia, and the rôle of the tick in its distribution.] *Vet. Obozr.*, Moscow, x. 41-56.
- Bienarović, S. K. (1907), [Ticks of North-western Russia as intermediaries of infection of cattle with enzootic haemoglobinuria.] *Arch. vet. nauk.*, St Petersburg, XXXVII., Pt. 2, 1-43.
- (1911), [The intervention of a tick in the causation of enzootic haemoglobinuria in North-western Russia; anatomy, biology, and pathogenicity of the insect, *Ixodes reduvius*.] *Przegl. vet.*, Lvov, XXVI. 133, 173.
- Billings, F. S. (1893), *Original investigations in cattle diseases in Nebraska. Southern cattle plague.* 3rd edit., revised and augmented with many new investigations, and the true place of the tick as a vehicle of infection unquestionably demonstrated. Lincoln, 116 pp., 8°.
- Birdseye, C. (9. III. 1912), Some common mammals of Western Montana in relation to Agriculture and Spotted Fever. *U.S. Dept. Agric., Farmers' Bull.*, No. 484. Washington, 46 pp., 34 Text-figs.
- see Henshaw, H. W.
- Bishop, C. F. (XII. 1911), Notes on a trypanosome found in a sheep tick, and its probable connection with the disease known as louping-ill. *Veterin. Journ.* LXVII. 709-715, 1 Fig. [Found a "trypanosome" in blood squeezed from a tick taken from diseased sheep at Bellingham, Northumberland. In *Sleeping Sickness Bull.* No. 36, p. 157, it is stated that the tick is *Ixodes ricinus*; it is not stated who determined it.]
- Bishopp, F. C. (23. VI. 1911). Some new North American Ixodidae, with notes on other species. *Proc. Biol. Soc. Washington*, XXIV. 197-208, Pl. 11. [*Ixodes cooki* var. *rugosus* n. var., ♂ and ♀ descr. Figs. 1-2; *I. banksi* n. sp., ♀ descr. Figs. 3-6; *I. kingi* n. sp., ♂ ♀ descr., Figs. 7-12; notes on *I. angustus* Neumann; *I. angustus* var. *woodi* n. var., ♀, Figs. 10-13; notes on *I. sculptus* Neumann and *Haemaphysalis chordeilis* Packard, ♂ descr.]
- (XII. 1911) [Review of Nuttall and Warburton, *Ticks*, pt. 2.] *Journ. Econ. Entomol.*, IV. 564-565. Concord, New Haven, U. S. A.
- (19. III. 1912), A new species of *Dermacentor* and notes on other North American Ixodidae. *Proc. Biol. Soc. Washington*, XXV. 29-38, Pl. 1. [*Ixodes diversifossus* Neumann, description of ♂ and ♀, Figs. 7-12; *I. texanus* Banks; *Dermacentor hunteri* n. sp., ♂ ♀, Figs. 1-6; *Amblyomma maculatum* Koch.]
- (31. III. 1913), The fowl Tick. *U. S. Dept. of Agricult., Bureau of Entomol.* Circular No. 170, 14 pp., 5 Figs. Washington, D.C. [*Argas persicus*, wrongly called *miniatus*. Geographical distribution (map) in the U. S., original figs., brief outline of known biology, eradication, etc.]

- Bishopp, F. C., see Hooker, W. A.
 — see Hunter, W. D.
- Bishopp, F. C., and King, W. V. (IV. 1913), Additional notes on the biology of the Rocky Mountain Spotted-fever Tick. *Journ. Econ. Entomol.*, vi. 200-211. [*Dermacentor venustus* Banks.]
- Bishopp, F. C., and Wood, H. P. (1913), The Biology of some North American ticks of the genus *Dermacentor*. *Parasitology*, vi. 153-187, 3 pls.
- Blacklock, B. (30. XII. 1912), The resistance of *Ornithodoros moubata* to various sheep dips. *Ann. Trop. Med. and Parasitol.*, vi. 429-433.
- (1913), Tick, resistance of to sheep dips. *Brit. Med. Journ.* i. 129.
- Blanc, G. (1910), Sur la terminaison du tube digestif des *Ixodidae*. *Bull. Soc. Zool. France*, xxxv. 219-225, 7 Figs.
- (1911), *Les spirochètes ; contribution à l'étude de leur évolution chez les Ixodidae*. Paris : Jouve & Cie, 129 pp. 8°.
- Blanchard, R. (3. I. 1906), Spirilles, Spirochètes et autres Microorganismes à corps spiralé. *Semaine Médicale*, xxvi. 1-5. Also *Arch. d. Parasitol.*, 1906, x. 129-149. Summary in *Revue Vétérinaire*, 1906, p. 86.
- (1906), Spirilla, Spirochaetes, and other spirally-formed Micro-organisms. (Translated from Summary in *Revue Vétérinaire*, 1906, 86.) *Journ. Comp. Pathol. and Therap.*, xix. 68-73. Also *Journ. Trop. Veter. Sci.* i. 320-329.
- (1907), Une spirochètose humaine en Colombie. *Bull. Acad. de méd.*, Paris, 3 s., LVII. 511-515.
- Böing, see Schuberg, A.
- Bordan, T. (1898), Az óvantay (*Argas reflexus* Latr.). *Rovart. Lapok*, v. 133-135.
- Borthwick (VII. 1905), Tick Paralysis affecting sheep and lambs. *Veterinary Journ.*, London, n.s. xii. 33-34. [Abstract of Report to Chief Vet. Surgeon Cape Gov't. Describes tick paralysis cases associated with presence of *Ixodes pilosus*. Rapid recovery after removal of tick ; dipping preventive.]
- Bos, J. R. (1900), *Agricultural Zoology* (Translated by J. R. A. Davis), xx+312 pp., 155 Figs., 2nd ed. London : Methuen & Co. [Ticks briefly mentioned on pp. 202-204. Fig. 127 of *Ixodes ricinus*, sketchy. Several inaccuracies in the description.]
- Bosi (1829), *Histoire des vers et des crustacées*, 2 ed. [Cited, according to Metz, 1911, p. 1, by Latreille, p. 178, as stating that *A. reflexus* occurs in Tuscany. Latreille found it in his own house.]
- Bouilov, V. (9. IV. 1914), A few words on Piroplasmosis. (Translated from the Russian.) *Ветеринарная Жизнь (Veterinary Life)*, Moscow, No. 13, 197-198. Rev. in *Review Applied Entomol.*, ser. B : Med. and Veter. (vi. 1914), ii. 97. [Ticks found on bushes ; 273 piroplasmosis cases in horses in Government of Tambov.]
- Brand, T. (VII. 1909), *Report on the Veterinary Survey of Northern Nigéria*. London : Darling & Son, 12 pp. [Ticks : p. 12, detd. by A. S. Hirst, British Museum.]
- Brown, A. A. (1910a), Tick fever in Fowls. *Journ. Agric. Victoria*, viii. 96-97, 5 Figs.
- (1910b) Tick fever or Spirillosis and Monadinitis of fowls. *Australasian Med. Gaz.*, Melbourne, xv. 689-697.
- Bruce, D., Hamerton, A. E., Bateman, H. R., and Mackie, F. P. (1910), "Amakebe," a disease of Calves in Uganda, in *Reports of the Sleeping Sickness*

Bibliography of the Ixodoidea. II BRU-CAN

Commission of the Royal Soc. (London : Darling & Son, Ltd., Printers), No. x. 86-103, Pl. X. [Pp. 94-96, experiments with *Rhipicephalus appendiculatus* and "Amakebe" (= East Coast Fever.)]

Bruce, D., Hamerton, A. E., Bateman, H. R., Mackie, F. P., and Lady Bruce (1911), Distribution of Ticks in Uganda, in *Reports of the Sleeping Sickness Commission of the Royal Soc.* (London : Darling & Son, Ltd., Printers), No. xi. 228-243, 1 Map. [Deals with *Amblyomma variegatum*, *A. burneum*, *A. tholloni*, *A. petersi*, *A. sparsum*, *A. splendidum*; *Rhipicephalus appendiculatus*, *R. simus*, *R. capensis*, *R. evertsi*; *Boophilus decoloratus*; *Haemaphysalis leachi*; *Ornithodoros moubata* (map), and *O. swignyi*; *Aponomma exornatum*; see also p. 186, examination of *O. moubata* (5) for parasites and (6) for *Tryp. gambiense* after feeding on infected blood; results negative.]

Bruce, Lady, see **Bruce, D.**

Brucker, E. A. (1898), Sur les pièces buccales des Acariens. *Comp. rend. Acad. Sci.*, CXXVI.

— (1901), Pièces buccales des Ixodides. *Bull. Soc. Entomol. France*, LXX.

Brumpt, E. (1909), Existence d'une spirochétose des poules à *Spirochaeta gallinarum* dans le pays Somali. *C. R. Soc. Biol.*, Paris, LXVI. 174-176. [*Argas persicus* of small size received from Dirredaoua, where many fowls died. Ticks placed on fowls; these developed spirochaetosis.]

— (9. VI. 1909), Sur une nouvelle spirochétose des poules du Sénégal produite par *Spirochaeta neweuzi* n. sp. *Bull. Soc. Path. Exot.*, II. 285-288.

— (1912), Le *Trypanosoma cruzi* évolué chez *Conorhinus megistus*, *Cimex lectularius*, *Cimex boueti* et *Ornithodoros moubata*. Cycle évolutif de ce parasite. *Bull. Soc. de Pathol. Exot.*, v. 360-367.

Burnet, J. (27. III. 1909), The rôle of Blood-sucking Arthropods in the Causation of Tropical Diseases. (Sleeping Sickness.) *Medical Times*, 231-232.

Buy, P. (1907), Histoire naturelle et médicale des Ixodes. *Soc. Linn.*, LIII. 93-155, 22 Figs. [Anatomy, classification, propagation of disease by ticks.]

Buysson, R. du (15. IV. 1912), Un hyménoptère parasite des Ixodes. *Arch. de Parasitol.* xv. 246-247, 1 fig. [Occurrence in *Ixodes ricinus* of a small chalcidid belonging to the Encyrtinae, and genus *Ixodiphagus* Howard. The author describes both the sexes of *Ixodiphagus caucurtei* n. sp. found by E. Brumpt in *I. ricinus* nymphs captured on deer at Chantilly, Oise, and at Fontainebleau (Oct.-Nov.).]

Cambridge, O. Pickard-, see **Pickard-Cambridge, O.**

Campbell, W. S. (1901), Fowl Ticks. *Agric. Gaz. N.S. Wales*, XII. 1285.

Canestrini, G. (1887), Intorno ad alcuni Acari ed Opilioni dell' America. *Atti Soc. Veneto Trentina di sci. nat.*, xi. fasc. 1, 104, Pl. IX. [Figs. 3, 5 of *Haemaphysalis micropla* Canestrini = *B. annulatus* var. *microplus* (Canestrini) Neumann, 1901, p. 280. Cited from Neumann, 1897, p. 408.]

— (29. X. 1897), Contribuzione alla conoscenza degli Acaroidei della Birmania. *Ann. Museo Civico di Storia Naturale di Genova*, Serie 2a, xvii. (xxxviii. 417-422. [p. 417, Footnote: *Opisthodon* Canestrini found to be preoccupied by the author; he therefore substitutes the generic name *Prosopodon*, which, however, is but a synonym for *Haemaphysalis* Koch.]

Bibliography of the Ixodoidea. II CAR-COW

- Carazzi, D. (1913)**, *Parassitologia animale; animali parassite ed animali trasmettitori di malattie parassitarie all'uomo e agli animali domestici. Con indicazioni tecniche per la raccolta, preparazione e studio microscopico dei parassiti.* Milano, Soc. ed. libraria, 436 pp., 5 Pls., 8°.
- Cardamatis, J. (1911)**, Des Piroplasmoses et Leishmaniasés. *Centralbl. f. Bakt.*, 1 Abt., Orig., LX. 511. Rev. in *Centralbl. f. Bakt.*, 1912, LII. (Referate), 124.
- Carpano, M. (1912)**, La febbre della costa nella Colonia Eritrea. Note biologiche e morfologiche sulla "*Theileria parva*." *Clinica Veterinaria*, N. 19, 20, 21, and 22, reprint, 46 pp., Pls. I-III. [*Rhipicephalus appendiculatus* stated to convey East Coast Fever (due to *Theileria parva*) in Eritrea.]
- Carpenter, G. H. (1908)**, Parasites of Domestic Animals. *Proc. Roy. Dublin Soc.* 1. 559. (*Ixodes ricinus*. *Piroplasma bovis*. Short note.)
- Cary, C. A. (1901)**, Texas or acclimation Fever. *Alabama Agric. Exp. Sta. Bull.* 116, pp. 231-289.
- Chilton, C. (1904)**. A new species of *Ixodes* parasitic on the grey duck. *Trans. New Zealand Institute*, xxxvi. 201-202, Pl. X. [*Ixodes anatis* n. sp. ♂ found on *Anas superciliosa*.]
- Christophers, S. R. (II. 1912)**, The development of *Leucocytozoon canis* in the tick, with a reference to the development of *Piroplasma*. *Parasitology*, v., 37-48. 2 Diagrams. [Development of *Haemogregarina canis* and of *Piroplasma canis* in *Rhipicephalus sanguineus*.]
- Christy, C. (1905)**, Tick Fever. *Brit. Med. Journ.*, 1. 1726.
- Clark, F. N. (1910)**, Stray notes on Ticks. *Proc. S. London Entom. Nat. Hist. Soc.*, 1909-10, pp. 29-33, 2 Pls.
- Cooley, R. A. (V. 1911)**, Tick control in relation to Rocky Mountain Spotted Fever. A report of co-operative investigations conducted by the Bureau of Entomology and the Montana Experiment Station. *Montana Agric. College Exper. Stat., Bull.* No. 85. Bozeman, Montana, 29 pp., 1 Fig. on title-page [of *Dermacentor* ♂].
- (II. 1913), Notes on little-known habits of the Rocky Mountain spotted fever tick (*Dermacentor venustus* Banks). *Journ. Econ. Entomol.*, vi. 93-95 (Discussed on 95-96).
- Cooper, W. F. (1905)**, *Ticks*, 16 pp., containing 19 Figures. Berkhamsted: Wm. Cooper and Nephews. [Short texts describing photomicrographs of *Haemaphysalis punctata*: larva, nymph, ♂ ♀, details in the structure of the mouth parts, microscopic sections. Many of these served to illustrate the paper read by Nuttall, Cooper, and Smedley (1905), which was published without figures.]
- see **Nuttall, G. H. F.**
- Cooper, W. F., and Laws, H. E. (5. v. 1913)**, The Tick-killing properties of Sodium Arsenate. *Agric. Journ. Union of S. Africa*, v. 716-721. Rev. in *Rev. Applied Entomol.*, 1. ser. B, 133.
- Cotton, E. C., and Voorhees, J. F. (1911)**. The cattle tick as affected by climate. *Tennessee Agric. Exp. Sta. Bull.* 94, 119-164, 42 Figs.
- Couvy, L.**, see **Marchoux, E.**
- Coward, T. A. (1907)**, Species of British Ticks recorded by Chas. Oldham, Esq., Kelvin, Berkhamsted. *Proc. Zool. Soc.*, London, 1907, p. 323. (*Haemaphysalis punctata* on a plover and *Ixodes respertilionis* on bat.)

Bibliography of the Ixodoidea. II CSO-DOD

- Csokor** (1894), Die muschelförmige Saumzecke (*Argas reflexus*). *Wiener Landwirtschaft. Zeitung*, No. 3. Wien. (Cited by Metz, 1911.)
- Cunliffe, N.** (1913), The variability of *Rhipicephalus pulchellus* (Gerstaecker, 1873), together with its geographical distribution. *Parasitology*, vi. 204-216, 6 Figs.
- (1914a), *Rhipicephalus sanguineus*: Variation in size and structure due to nutrition. *Parasitology*, vi. 372-378, 4 Text-figs.
- (1904b) Observations on *Argas brumpti* Neumann, 1907. *Parasitology*, vi. 379-381, 1 Text-fig.
- see **Hindle, E.**
- Curtice, C.** (1896), The Cattle Tick (*Boophilus bovis*, Riley). *Agric. Gaz., N. S. Wales*, vii. 454-466, 3 Pls. (Reprinted from *Bull. Texas Agric. Exper. Station*, 1892. Life History.)
- (1900), How to kill Ticks. *Rept. Comms. Agric. N. Carolina for 1900*, pp. 191-193.
- (1901), Cattle Tick the carrier of Splenic fever. *Rept. Comms. Agric. N. Carolina for 1900*, pp. 68-71, 1 Pl.
- (1912a), Progress and prospects of Tick eradication. *U. S. Dep't. Agric. Bur. Animal Industry*, Washington, xxvii. 255-265.
- (1912b), Anthrax and Tick Fever. *Amer. Veter. Review*, xl. 601, 757. (Review in *Centralbl. f. Bakt.*, 1912 (Referate), lxxx. 481-482. [*Boophilus annulatus*, possible carriers of anthrax.]
- Darling, S. T.** (1910), Panama Ticks. *Journ. Econ. Entomol.*, iii. 222 [short note].
- Davidson, J.**, see **Robinson, L. E.**
- Davis, B. F., and Petersen, W. F.** (iv. 1911), Complement deviation in Rocky Mountain Spotted Fever. *Journ. Infect. Diseases*, viii. 330-338.
- Dawson, C. F.** (x. 1902), Texas Cattle Fever and Salt-sick. *Florida Agric. Experiment Station, Dept. Veter. Sci., Bull.* No. 64, 524-550, 1 Pl. (2 Figs.). De Land, Florida. [Describes Texas fever, biology of *B. annulatus*, preventive measures, etc.]
- Dieffenbach** (), Corpora aliena in corpore humano. *Rust's Magazine*. [Cited by *Hagen*, x., 1887, p. 124, as reporting strange cases of ticks. etc., in the human ear.]
- Doane, R. W.** (1912), An annotated list of the literature on Insects and Disease for the year 1911. *Journ. Econ. Entomol.*, v. 268-285. [Ticks and disease, 31 references.]
- (1913), An annotated list of the literature on Insects and Disease for the year 1912. *Journ. Econ. Entomol.*, vi. 366-385. Rev. in *Rev. Applied Entomol.*, i., ser. B, 222.
- (ii. 1914), Disease-bearing Insects in Samoa. *Bull. Entomol. Research*, London, iv. 265-269, 3 Pls. Rev. in *Review Applied Entomol.*, ser. B: Med. and Veter., vol. ii. (v. 1914), pp. 82-83. [Dogs infested with *R. sanguineus*.]
- Dodd, S.** (iii. 1910), Spirochaetosis of Fowls in Queensland. *Journ. Compar. Pathol. and Therap.*, xxiii. 1-16. [Transmission of disease by inoculation and by *Argas persicus*, description of symptoms, etc. *A. persicus*, when starved, remained infective seven months.]

Bibliography of the Ixodoidea. II DOD-DUT

- Dodd, S.** (1910), Spirochaetosis in fowls in Queensland. *Journ. Comp. Pathol. and Therap.*, 1-17. (Cited by Hauer, 1912, p. 495.)
- (VI. 1910), Piroplasmosis of Cattle in Queensland. *Journ. Compar. Pathol. and Therap.*, xxiii. 141-159. [*Boophilus australis* transmits *Piroplasma bigeminum* and a *Piroplasma* of the *mutans* type in Queensland.]
- Dönitz, W.** (1906a), Zecken als Krankheitsüberträger. *Ber. Senckenberg. Nat. Ges. Frankfurt a. M.*, 1905, 39-52.
- (1906b), Die Zecken unserer Haustiere als Krankheitsüberträger. *Verhandl. d. deutsch. Kolonialkongr.* (1905), Berlin, 275-284.
- Dördelmann** (1906), Die Taubenzecke. *Zeitschr. f. Brieftaubenkunde*, Hannover, p. 350. (Cited by Metz, 1911).
- Downing, J. E.**, see **Thompson, W.**
- Drake-Brockman, R. E.** (6 and 16. IV. 1913), Ticks and Relapsing Fever in Somaliland. *Reports to the Colonial Office* (London). Rev. in *Rev. Applied Entomol.*, I., ser. B, 116.
- (XI. 1913), On the Occurrence of an Epidemic of Relapsing Fever in Bulhar, British Somaliland. *Journ. Lond. Sch. Trop. Med.*, II. 195-199, 2 Charts. Also rev. in *Rev. of Applied Entomol.*, II., ser. B, 8-9. [Lists *Hyalomma aegyptium*, *Rhipicephalus pulchellus*, *R. sinus*, *R. sanguineus*, *Boophilus* sp., *Ornithodoros savignyi*, *Argas persicus* as occurring at Bulhar. *O. savignyi* in soft soil or sand of floors of native huts and thereabouts. Said to be common in coast towns; called "Kūdkūdeh" or "Kūdkūda" (all other ticks called "Shillin"). Bites irritate; scratching produces infection and ulceration. *A. persicus* common in huts of those keeping fowls. Dozens of larvae on every fowl examined. Somalis say it never attacks them, and they have no name for it. Thinks *Spirochaeta duttoni* has been imported.]
- Dschunkovsky, E.** (1912), Persian Relapsing fever (Miana). *Med. Obozr., Moscow*, LXXVII. 995-1005, 3 Pls., 1 Table.
- (1913), Das Rückfallfieber in Persien. *Deutsche med. Wochenschr.*, XXXIX. 419.
- (27. II. 1913), Das Rückfallfieber in Persien. *Deutsche med. Wochenschr.*, 419-420, 2 Figs.
- Dschunkovsky, E.**, and **Luh, J.** (IX. 1909), I. Entwicklungsformen von Piroplasmen in Zecken. II. *Leishmania* beim Hunde in Transkaukasien. II. Zur Frage über die Erforschung der Protozoenkrankheiten des Geflügels in Transkaukasien. IX. *Internat. tierärztl. Kongress im Haag*, Sept. 1909. 15 pp. 1 Pl., reprint. [*Piroplasma bigeminum* stated to undergo development in *Rhipicephalus sanguineus* and *Hyalomma aegyptium*; *P. annulatum* said to develop in *R. sanguineus* and *P. oris* develops in *R. bursa*.]
- (IX. 1909a), Protozoenkrankheiten des Blutes der Haustiere in Transkaukasien. IX. *Internat. tierärztl. Kongress im Haag*, IX. 1909, 19 pp., 2 Pls., reprint. [Lists the ticks found in Transcaucasia and determined by A. Birula and A. S. Hirst. All of the authors' ticks have since been examined by Nuttall and Warburton.]
- Dugès, A.** (1903), [Las Garrapatas de México]. *Mem. Soc. cient. Ant. Alzate Mexico*, XVIII. 187-194, 35 Figs.
- Dutton, J. E.**, **Todd, J. L.**, and **Hanington, J. W. B.** (1907), Trypanosome transmission experiments. *Ann. Trop. Med. and Parasitol.*, I. 201-229. [Ticks, pp. 215-216, infection experiments with *O. moubata* and *T. gambiense*—negative.]
- Dutton, J. E.**, see **Newstead, R.**

Bibliography of the Ixodoidea. II EAT—GAG

- Eaton, E. M.** (1913), A case of tick-bite followed by widespread transitory muscular paralysis. *Australasian Med. Gaz.*, Sydney, XXXIII. 391-394.
- Eaton, Cleland and others** (16. VI. 1913), Tick-bite. *Journ. Trop. Med. and Hyg.*, 188-189. Also in *Rev. Applied Entomol.*, I, ser. B, 189.
- Eckard, B.**, see **Kleine, F. K.**
- Edwards, C. W.** (I. 1914), Cattle-tick eradication. *Philippine Agric. Review*, Manila, VII. 44-45. Rev. in *Review of Applied Entomology*, ser. B (IV. 1914), pp. 59-60. [Deals in a general way with tick-pest and eradication by dipping.]
- Ellenberger, W. P.** (1909), The eradication of cattle ticks in the South. *Amer. Vet. Rev.*, New York, XXXV. 651-662.
- see **Graybill, H. W.**
- Eysell, A.** (IV. 1912), Beiträge zur Biologie der Zecken. *Archiv f. Schiffs- und Tropen-Hyg.*, XVI., 205-212, 7 Figs. [Deals with (1) copulation, nothing new; (2) mechanism of bite in ticks. 5 figs. original but of no special interest.]
- Fantham, H. B.** (1911), Some researches on the life-cycle of Spirochaetes. *Ann. Trop. Med. and Parasitol.*, v. 479. Rev. in *Centralbl. f. Bakt.*, 1912, Referate, LII. 68-69.
- Field, F. E.**, see **Minett, E. P.**
- Flu, P. C.** (1911), Die Aetiologie der in Surinam vorkommenden sogenannten "Boschyaws," einer der Aleppobeule analogen Erkrankung. *Centralbl. f. Bakt.*, I Abt., Orig. LX. 624, 637, 1 Pl., 3 Text-figs. [Ticks: p. 634.]
- Francis, M.** (1896), Preventive Measures for Farm or Range Use. *Agric. Gaz.*, N. S. Wales, VII. 466-468.
- Franco, F. R.** (1906-7), Apuntes sobre el *Argas reflexus* de Bogotá. *Rev. méd. de Bogotá*, 103-105.
- Fricks, L. D.** (1913), Rocky Mountain Spotted (or Tick) Fever; sheep grazing as a possible means of controlling the wood tick (*Dermacentor andersoni*) in the Bitter Root Valley. *Public Health Reports*, Washington, XXVIII. 1647-1653.
- (1914), Rocky Mountain Spotted Fever; a report of its investigation and of work in tick eradication for its control during 1913. *Pub. Health Reports*, Washington, D.C., XXIX. 449-461.
- Fricks, L. D.** (1914 a), Rocky Mountain Spotted Fever: some investigations made during 1912 by Passed Asst. Surgeon T. B. McClintic. *Public Health Reports*, Washington, XXIX, 1008-1020.
- Friedberger, F.**, and **Fröhner, E.** (1908), *Lehrbuch der speziellen Pathologie und Therapie der Haustiere*. Stuttgart: F. Enke. 2 vols., 8vo.
- Froggatt, W. W.** (1900), Notes on a collection of ticks, determined by Professor Neumann. *Agric. Gaz.*, N. S. Wales, XI. 540-542. [2 n. spp. without description.]
- (III. 1912), The Fowl Tick. *Agricultural Gazette*, N. S. Wales, Misc. Publ. No. 1,509, pp. 254-261, 4 Figs. (*Argas persicus*.)
- Fröhner, E.**, see **Friedberger, F.**
- Fumouze** (1873-74-77), Sur le *Argas persicus*. *Bull. Soc. Ent. France*, sér. 5, III, IV. and V. [Cited by Bonnet, A. (1907), p. 164.]
- Gager, S. H.** (1910), A preliminary check list of the parasites of Indian domesticated animals. *Journ. Trop. Veter. Sci.*, Calcutta, v. 65-71. [P. 69, Ticks listed determinations doubtful.]

- Galli-Valerio, B. (1908)**, Le rôle des arthropodes dans la dissémination des maladies. *Centralbl. f. Bakteriöl.*, xli. 353-360.
- (1909), Notes de parasitologie et de technique parasitologique. *Centralbl. f. Bakt.*, 1 Abt., Orig., LI. 538-545, 3 Figs. [P. 539, known species of *Amblyomma*, *Aponomma*, *Haemaphysalis*, *Hyalomma*, *Ixodes*, *Boophilus* ("Margaropus"), *Rhipicephalus* listed from various countries; Neumann's determinations; pp. 543-544, notes on biology of *I. ricinus*.]
- (26. IX. 1910), Notes de parasitologie et de technique parasitologique. *Centralbl. f. Bakt.*, 1 Abt., Orig., LVI. 43-47. [Pp. 45, 46, biology of *Ixodes ricinus*.]
- (7. X. 1911), Notes de parasitologie et de technique parasitologique. *Centralbl. f. Bakt.*, 1 Abt., Orig., LVI. 358-363. [Merely records: *Ixodes herxogonus* from *Mustela foinea*, collected 28. x. 1910 at Chailly, near Lausanne, by Dr. Cerny; *Rhipicephalus sanguineus* from *Erinaceus algericus* and *Lepus timidus*, 1. 1911, at Île de Djerba, Tunisia, collected by Weiss; *Hyalomma aegyptium*, ditto, from cattle; *Amblyomma* sp. from *Erinaceus algericus*, ditto; *O. savignyi* from cow, ditto. Ticks determined by L. G. Neumann.]
- (1911), Recherches sur la spirochétiase des poules de Tunisie et sur son agent de transmission: *Argas persicus* Fischer. 2me mémoire. *Centralbl. f. Bakteriöl.*, 1 Abt., Orig., LXI. 529-538.
- (1912), Notes de Parasitologie. *Centralbl. f. Bakt.*, 1 Abt., Orig., LXV. 304-310. [Ticks: p. 310, biology of *Ixodes ricinus*, effect of humidity on hatching of eggs, 12 lines.]
- (1914), Recherches sur la spirochétiase des poules de Tunisie et sur son agent de transmission: *Argas persicus* Fischer. 3e mémoire. *Centralbl. f. Bakt.*, 1 Abt., Orig., LXXII. 526-528.
- Gamble, M. (15. v. 1914)**, A list of Blood-sucking Arthropods from the Lower Congo, with a Vocabulary. *Journ. Trop. Med. and Hyg.*, xvii. 148-150. [P. 149 lists *O. moubatu* and known spp. of *Ixodidae* det. by Nuttall and Warburton; gives native names.]
- Garden (1912)**, East Coast Fever in Nyasaland. *Ann. Rept. Dept. Agric., Nyasaland*, 1912, pp. 31-36. Rev. in *Rev. Applied Entomol.*, i., ser. B, 52-53.
- Gedoelst (1911)**, *Synopsis de Parasitologie*. [Ticks mentioned on pp. 145-155. Reference supplied by J. C. Huber.]
- Gené, G. (1844)**, Sulla generazione degli issodi. *Atti Riunione Sci. Ital.*, Milan, 367-369. Also abstract in *Ann. and Mag. Nat. Hist.*, xviii., 1846, No. 118, pp. 160-162.)
- Gestro, R. (1904)**, Leonardo Fea ed i suoi viaggi. Cenni biografici. *Annali del Museo Civico di Storia Naturale di Genova*, serie 3, I. (xli.), 95-152, 4 Maps, reprint. [Lists Fea's collections; species named by Supino: *Dermacentor feae*, *D. longipes*, *D. auratus*, *D. indicus*; *Haemaphysalis birmaniae*, *H. hystricis*; *Opisthodon canestrinii*, *O. asiaticus*, *O. gestroi*; *Ixodes testudinis*, *I. birmanensis*, *I. varanensis*, *I. bengalensis*, *I. granulatus*, *I. globulosus*; *Rhipicephalus javanensis*, *R. flavus*, *R. bhamensis*, *R. haemaphysaloides*.]
- Gilruth, J. A. (viii. 1910)**, Note on the existence of spirochaetosis affecting fowls in Victoria. *Proc. Roy. Soc., Victoria*, xxiii. n.s., pt. i. 102-104. [*Argas persicus* associated with fowl spirochaetosis.]
- (X. 1912), The introduction and spread of the cattle tick (*Boophilus annulatus* var. *microplus*) and of the associated disease, tick fever (Babesiasis), in Australia.

Bibliography of the Ixodoidea. II GÖL—GRE

- Proc. Roy. Soc., Victoria*, XXV. n.s., pt. I. 17-22; reprinted in *Queensland Agric. Journ.*, 351-357; to be continued.
- Göldi, E. A.** (1913), *Die sanitär-pathologische Bedeutung der Insekten und verwandten Gliedertiere, namentlich als Krankheits-Erreger und Krankheits-Ueberträger.* Berlin, 155 pp., 8°.
- Gonder, R.** (1911), Die Entwicklung von *Theileria parva*, dem Erreger des Küstenfiebers der Rinder in Afrika. *Arch. f. Protistenk.*, XXII. 170-178, Pls. X-XI. [Only incidental mention of "ticks" as vectors.]
- Goodall, T. B.** (1913), About Acarina; their habits, hosts, practical methods of examination for, and life-history. *Veterinary Journ.*, LXIX. 112, 170, 224.
- Gray, C. E.**, see **Theiler, A.**
- Graybill, H. W.** (14. VI. 1911), Studies on the biology of the Texas-fever tick. *U. S. Dep't Agricult., Bur. Animal Industry*, Washington, *Bull.* 130, 42 pp., 3 Figs.
- (30. VII. 1912), Methods of exterminating the Texas-fever tick. *U. S. Dep't Agricult., Farmers' Bull.* No. 498, Washington, 42 pp., 19 Figs.
- (1913), *The action of arsenical dips in protecting cattle from infestation with ticks.* Washington: Government Printing Office. 27 pp., 8°.
- (15. IV. 1913), The action of arsenical dips in protecting cattle from infestation with ticks. *U. S. Dep't of Agricult., Bureau of Animal Industry*, Washington, D. C., *Bulletin* 167, 27 pp.
- see **Ransom, B. H.**
- Graybill, H. W., and Ellenberger, W. P.** (11. XII. 1911). Directions for constructing a vat and dipping cattle to destroy ticks. *U. S. Dep't Agric. Bureau Animal Industry*, Circular No. 183. Washington, D.C.: Gov't Printing Office. 15 pp., 1 Fig. [plans for concrete dipping vat].
- Graybill, H. W., and Lewallen, W. M.** (9. IX. 1912), Studies on the biology of the Texas-fever tick. (Supplementary report.) *U. S. Dep't Agricult., Bur. Animal Industry*, Washington, *Bull.* 152, 13 pp.
- Greenway, H. G.** (VII. 1907), Fever caused by Tampans. *Transvaal Agric. Journ.*, Pretoria, v. 1029-1030. [Letter to the Editor from Zaagkuilsdrift, Piennars River. The author camped in a "nice clean-looking native hut" on the route to "Klopper Pan"; his party slept on the floor, and were severely bitten by tampans, which were found next day in such numbers in their kits that the latter were put into the river for seven days to get rid of them. After two days unbearable irritation of the skin, followed by big red blotches all over the body; on the fifth day, much swelling and lassitude; on the eighth day, fever, repeated every seventy hours for six weeks (102°-103.5° F.). The natives of the party escaped effects; an English companion suffered similarly, whilst a Boer was only ill and badly swollen and marked for about 16 days.]
- Greffier** (1911), Quelques considérations sur des parasites plitiriasiques et acariasiques provoquant chez leur hôte un état de maigreur ou de cachexie motivant la saisie. *L'Hygiène d. l. Viande et du Lait*, v. 65. Rev. in *Centralbl. f. Bakt.*, 1912, LI. (Referate), 567-568. [Mentions *Argas reflexus*, occurrence on pigeons.]
- Greig-Smith, R., and Meek, A.** (1897), Investigations into the Cause of Louping Ill. *Veterinarian*, LXX. 249-262, 1 Pl. [Supposed transmission by ticks.]
- Greig-Smith, R.**, see **Meek, A.**

Bibliography of the Ixodoidea. II GÜE—HAL

- Güell, A. R. (1913)**, El baño de immersion para el exterminio de la garrapata. *Boletín d. Fomento, San José, Costa Rica*, III. 192-194, 1 Fig. Rev. in *Rev. Applied Entomol.*, I, ser. B, 159.
- Guérin (1868)**, (Ixode) Corps étranger de l'oreille datant du 1 dec. 1866 (Méxique) sorti le 4 juillet 1867, ayant vécu après sa sortie deux mois environ. *Gaz. des hôpit.*, No. 5, p. 19. [*Ornithodoros megnini*? Title communicated by J. C. Huber.]
- Gulliver (1872)**, *Argas reflexus* s. *Rhynchoprion columbae*. *Ann. and Mag. Nat. Hist.*, IX., 4th ser., p. 242. [Cited in bibliogr. by Metz, 1911.]
- (1872), Eggs and newly-hatched young of *Ixodes dugesii* and *Argas reflexus*. *Ann. and Mag. of Nat. Hist.*, London, x., 4th ser., p. 230 et seq. [Cited in bibliogr. Metz, 1911.]
- Hadley, P. H. (29. X. 1909)**, Notes on the parasitism of *Cytodictes nudus* and *Haemaphysalis chordeilis*. (Contribution No. 6 from the Division of Biology of the Rhode Island Agricult. Experiment Station, Kingston, R. I.) *Science*, New York, xxx. 605-606. (P. 606, *H. chordeilis*, determined by N. Banks, found to kill young turkeys at Norwich, Vermont, U. S. A.)
- Hadlington, J. (IV. 1914)**, The Fowl Tick. *Agric. Gaz., N. S. Wales*, Sydney, xxv. 345-349, 2 Figs. Rev. in *Rev. of Applied Entomol.* s. B, Med. and Veter., II. 115-116. [*Argas persicus* in relation to poultry-keeping; preventive measures.]
- Hadwen, S. (1910)**, Note on the finding of *Haemaphysalis punctata* at Winnipeg, Manitoba. *Canadian Entom.*, XLII. 221-222, 1 Pl.
- (1912), The life-history of *Ixodes angustus* (Banks). *Proc. Brit. Columbia Entomol. Soc.*, Vancouver, No. 1 n.s. (Report of Meeting held 9. XII. 1911), 37-38. Reprinted in *Rep. Vet. Dir.-General, Canada, Dept. Agric.*, 1912, 92-99, Pls. II-VI. [*I. angustus* raising notes, *I. texanus* mentioned.]
- (1912-13), The life-history of *Dermacentor variabilis*. *Parasitology*, v. 234-237.
- (1913), Preliminary note on "Tick Paralysis." Letter from Veterinary Director-General. *American Veter. Review*. [Cited by Hadwen in *Parasitology* (x. 1913), vi. 297.]
- (1913a), Address on "Tick Paralysis." *Proc. Brit. Columbia Veter. Assoc.* [Cited by Hadwen in *Parasitology* (x. 1913), vi. 297.]
- (x. 1913), On "Tick Paralysis" in sheep and man following bites of *Dermacentor venustus*. *Parasitology*, vi. 283-297, Pls. XXI and XXII.
- Hadwen, S., and Nuttall, G. H. F. (x. 1913)**, Experimental "Tick Paralysis" in the dog. *Parasitology*, vi. 298-301. [Used *Dermacentor venustus*.]
- Hagen, H. A. (x. 1887)**, A living *Ixodes* said to have been four months in the ear of Man. *Entomologica Americana*, Brooklyn, N. Y., III. 124-125. [Tick removed alive from the ear of a man from a cattle ranch in Arizona. The tick measured 12×6 mm., and moulted about a month after removal. It must have been *Ornithodoros megnini*.]
- Hall, M. C. (1912)**, Our present knowledge of the distribution and importance of some parasitic diseases of sheep and cattle in the United States. 27th Ann. Rep. Bureau of Animal Industry (1910), 419-463, 2 Pls., 18 Text-figs. Reprinted as U. S. Dept. of Agricult., Bur. An. Industry, Circular 193. Washington, D. C., 1912 [Original pagination retained. Plate XXXV, Fig. 1 (*Boophilus annulatus* ♀, replete; photograph), 424-428. Very brief account of piro-

Bibliography of the Ixodoidea. II HAM—HIR

plasmosis in cattle; Fig. 45, *P. bovis* (not original); Fig. 46, map giving distribution of *B. annulatus* in U. S. A.]

Hamerton, A. E., see **Bruce, D.**

Hanington, J. W. B., see **Dutton, J. E.**

Hart, G. H., see **Mackellar, W. M.**

Hauer, A. (1912), Untersuchungen über die Wirkung des Mittels 606 auf die Hühnerspirillose. *Centralbl. f. Bakt.*, I. Abt., Orig. LXII. 477-496. [Valuable summary of literature on fowl spirochaetosis with good bibliography.]

Hays, W. J. (1869), The moose tick. *American Naturalist*, II. 559, Fig. [Title communicated by J. C. Huber.]

Hazen, E. H. (1871), Cattle tick in the human ear. *American Naturalist*, v. [Title communicated by J. C. Huber.]

Henry, M. (x. 1913), The Tick problem in New South Wales. *Agric. Gaz., N.S.W.*, Sydney, XXIX. 829-837. Rev. in *Rev. Applied Entomol.*, I., ser. B, 232-233.

Henshaw, H. W., and **Birdseye, C.** (1911), The mammals of the Bitter Root Valley, Montana, in their relation to Spotted Fever. *U. S. Dep't Agric., Bur. Biol. Surv., Circular* 82, pp. 24, 12 Figs.

Herring, L. T. (III. 1911), Texas Tick Fever and Brahmin Cattle. *American Veter. Rev.*, N. Y., 1910-11, XXXVIII. 756-761. Abstract in *Journ. Trop. Veter. Sci.*, Calcutta, VII. 135-136. [States pure breed and Brahma crossed with native cattle are less liable to tick infestation than native cattle, although they are susceptible to piroplasmosis in Texas.]

Hibbard, R. P., and **Neal, D. C.** (XI. 1911), Some observations on the blood of dairy cows in tick-infested regions. *Journ. Infect. Diseases*, IX. 324-342. [No mention of the species of tick infesting the cattle.]

Hindle, E. (VI. 1911), The transmission of *Spirochaeta duttoni*. *Parasitology*, v. 133-149. [Experiments carried out in Prof. Nuttall's laboratory to determine the manner in which *O. moubata* transmits spirochaetosis.]

— (X. 1911), The relapsing fever of Tropical Africa. *Parasitology*, IV. 183-203. 2 Maps and 1 Chart. [A short summary. Brief mention of *O. moubata* and its relation to the disease. Map 1 shows geogr. distribution of the disease, Map 2 (after Merriman) that of the tick.]

— (XII. 1911), On the life-cycle of *Spirochaeta gallinarum*. (Preliminary note.) *Parasitology*, IV. 463-477, 4 Figs. and 1 diagram. [Development of fowl spirochaete in *Argas persicus*.]

— (read 29. I. 1912), The inheritance of spirochaetal infection in *Argas persicus*. *Proc. Cambr. Philos. Soc.*, XVI. 457-459.

— (III. 1912), Attempts to transmit Fowl Pest by *Argas persicus*. *Bull. Soc. Méd. Exotique*, Paris, v. 165-167. [Fowl-pest virus still potent after nine days, but not after fourteen days, in the gut of *A. persicus* at 22-28° C. The virus does not traverse the gut wall of the tick. The tick not a host for the parasite, and incapable of conveying the disease.]

— see **Nuttall, G. H. F.**

Hindle, E., and **Cunliffe, N.** (13. I. 1914), Regeneration in *Argas persicus*. *Parasitology*, VI. 353-371, 4 Figs.

Hindle, E., and **Merriman, G.** (1912), The sensory perceptions of *Argas persicus* (Oken). *Parasitology*, v. 203-216.

Hirst, S. (VI. 1914), Report on the Arachnida and Myriapoda collected by the

Bibliography of the Ixodoidea. II HOO—JEN

- British Ornithologists' Union Expedition and the Wollaston Expedition in Dutch New Guinea. *Trans. Zool. Soc. London*, xx. 325-333, Text figs. XIV-XIX, reprint. [Pp. 327-330: Description of n. spp.: *Amblyomma papuana*, *Haemaphysalis novae-guineae*.]
- Hooker, W. A., Bishopp, F. C., and Wood, H. P.** (1912), The life-history and bionomics of some North American Ticks. *U. S. Dept' Agric., Bur. Animal Industry*, Washington, *Bull.* 106, 239 pp., 15 Pls., 17 Figs.
- Howard, C. W.** (18. VII. 1911), An experiment in fumigation of ticks. *Parasitology*, v. 165-168. [Clayton apparatus for sulphur fumigation tried experimentally for the destruction of ticks: *Boophilus*, *Amblyomma*, *Rhipicephalus*, *Ornithodoros*, in all stages, on cattle transport ships. A replete *A. hebraeum* survived and oviposited after twelve hours' exposure to 15 per cent. of gas. All other ticks destroyed.]
- Howarth, S.** (1897), Parasite of Tortoise. *Science Gossip*, n.s., III. 236, 1 Fig. Remarks: By T. Sheppard, p. 282; by J. Burton, p. 283.
- Hudson, W. H.** (1903), *The Naturalist in La Plata*, 394 pp., illustrated by J. Smit. London: J. M. Dent & Co., 4th ed. [Mentions "Ixodes" on pp. 141-144, with a figure. Contains nothing worth noting.]
- Hunter, W. D., and Bishopp, F. C.** (17. XI. 1911), The Rocky Mountain spotted fever tick, with special reference to the problem of its control in the Bitter Root Valley of Montana. *U. S. Dept' Agric., Bur. of Entomol., Bull.* 105, Washington, D.C., 47 pp., 3 Text-figs., Pls. I-III. [Illustrates geographical distribution, ♂, ♀, o and L of *Dermacentor venustus*, ♂ and ♀ of *D. albipictus*, bibliography.]
- (1911), Some of the more important ticks of the United States. *Year Book U. S. Dept. Agric.* for 1910, 219-230, Pls. XV-XVI issued as "Y. B. separate—531." [*Argas persicus*, *Ornithodoros megnini*, *Amblyomma americanum*, *A. maculatum*, *Dermacentor venustus*, *D. occidentalis*, *D. variabilis*, *Haemaphysalis leporis-palustris*, *Boophilus annulatus*, *Rhipicephalus sanguineus*, a few of these figured (photographs).]
- Hunter, W. D., and Mitchell, J. D.** (1909), A practical demonstration of a method for controlling the cattle tick. *U. S. Dept' Agric., Bur. Animal Industry*, Washington, *Circular* 148, 4 pp.
- Hutcheon, D.** (1901), Heartwater in Sheep and Goats. *Agric. Journ. Cape of Good Hope*, xix. 302-314, 2 Figs. [*Amblyomma hebraeum*, "carrier" of disease.]
- (1903), Heartwater in Sheep and Goats. The experiments of Dr. Purvis. *Agric. Journ. Cape of Good Hope*, xxii. 438-443.
- Hutyra, F. and Marek, J.** (1909). *Spez. Pathol. u. Ther. d. Haustiere*. Jena: G. Fischer. 2 vols.
- Ichès, Lucien** (1908), Les Garrapates. *Bull. Soc. nation. Acclimat. France*, LV. 385-393, 1 Fig.
- Jarvis, T. D.** (1910), The Acarina, with a Host Index to the Species found in Ontario. 40th Ann. Rep. Entomol. Soc., Ontario, 1909, 82-109, 5 Pls., 18 Figs.
- Jennings, A. H.** (1912), Some notes on the tick *Ornithodoros talaje* Guérin. *Proc. Entom. Soc. Washington*, XIV. 77-78.

Bibliography of the Ixodoidea. II JUN—KNU

- Jungels** (1911), Vorläufige Mitteilung über Spirochätenerkrankungen der Hühner in Deutsch-Ostafrika. (Note.) *Arch. f. Schiffs- u. Tropen-Hyg.*, xv. 541.
- Keferstein, A.** (1837), *Naturgeschichte der schädlichen Insekten*. Erfurt. [Ticks: pp. 113, 122, 157; reference communicated by J. C. Huber.]
- Kersey** (1872), Notes on *Ixodes dugesii*. *Quart. Journ. Microsc. Sci.*, n.s., xii. [Cited by Bonnet, 1907.]
- Kieffer, C. F.** (1907), Intermittent Tick Fever; preliminary report on a new type of fever due to tick bite (Ixodiasis). *Journ. Amer. Med. Assoc.*, xlviii. 1154–1158.
- King, H. H.** (1908), Ticks. *3rd Report Wellcome Research Laboratories*, Khartoum, 220–222, pl. xxvi. [Brief description of *Argas persicus*, *Ornithodoros savignyi*. Coloured pl. of *A. marmoreum* ♂ ♀, *Hyalomma aegyptium* ♂ ♀, *O. savignyi*, *A. persicus*. Lists other species occurring in Soudan: *Boophilus*, *Rhipicephalus*, *Aponomma*.]
- (1911), Ticks. *4th Rept. Wellcome Research Laboratories*, Khartoum. Vol. B: General Science, 128–130. [*Argas brumpti* found at Gebelein; other known species of *Ixodes*, *Haemaphysalis*, *Dermacentor*, *Aponomma*, and *Amblyomma* listed.]
- King, W. V.**, see **Bishopp, F. C.**
- Kinghorn, A., Yorke, W., and Lloyd, L.** (10. VI. 1913), Final Report of the Luangwa Sleeping Sickness Commission of the British South Africa Company, 1911–12. *Ann. Trop. Med. and Parasitol.*, vii. 183–302, 11 Pls. Rev. in *Rev. Applied Entomol.*, i, ser. B, 168–172. [*O. moubata*.]
- Kleine, F. K., and Eckard, B.** (1913), Ueber die Lokalisation der Spirochäten in der Rückfallfieberzecke (*Ornithodoros moubata*). *Zeitschr. f. Hyg. u. Infektionskrankh.*, lxxiv. 389–394.
- Knab, F.** (IV. 1912), Unconsidered factors in disease transmission by blood-sucking insects. *Journ. Econ. Entomol.*, v. 196–200. [P. 200: casual reference to ticks; nothing original.]
- Knuth, P.** (1911), Feststellung von *Haemaphysalis punctata* beim Rinde im Kreise Apenrade. *Berliner tierärztl. Wochenschr.*, No. 48; also in *Beiheften z. Arch. f. Schiffs- und Tropen-Hyg.*, xvi. Repr., 12 pp. 8 Figs. [of *I. ricinus*, *I. hexagonus*, reproduced from Nuttall, Warburton, Cooper and Robinson, *Ticks*, pt. II., and *H. punctata* reproduced from Nuttall, Cooper and Robinson, 1908].
- (1912a), Kommen auch in Deutschland beim Rinde verschiedene Arten von Piroplasmen oder ähnliche Blutparasiten vor? *Berl. tierärztl. Wochenschr.*, No. 17, 10 pp., 4 Figs., reprint. [*Ixodes ricinus* and *Haemaphysalis punctata* referred to as carriers.]
- (1912b), Erwiderung auf den Artikel des Herrn Kreistierarztes Witt: Die Malaria des Rindes (Milzzerreissung). *Berl. tierärztl. Wochenschr.*, No. 40, 20 pp., 4 Figs., repr. [Brief mention of ticks: *I. ricinus*.]
- (17. VII. 1912), Bemerkungen zu dem Artikel des Herrn Prof. Dr. Miessner betreffend die Milzruptur des Rindes bzw. perakute Form der Hämoglobinurie des Rindes in Bd. LXII. p. 471 dieses Centralblattes. *Centralbl. f. Bakt.*, 1 Abt., Orig., lxxv. 296–303. [Pp. 299–300: *Ixodes ricinus* and *Haemaphysalis punctata* referred to, in relation to bovine piroplasmosis in Germany.]
- 1913, Weitere Beobachtungen über *Haemaphysalis punctata* als wahrschein-

Bibliography of the Ixodoidea. II KOB—LAW

- lichen Überträger des Erregers der inneren Verblutung (Milzruptur) beim Rinde. *Berl. tierärztl. Wochenschr.*, Nos. 47 and 48, 10 pp., repr.
- Kobert, R.** (1900), *Lehrbuch der Intoxicationen*, spec. Theil, 2 Aufl. [Refers to *A. persicus*; reference communicated by J. C. Huber.]
- Koch, R.** (1904), Rhodesian Redwater or African Coast Fever. *Agric. Journ. Cape of Good Hope*, xxiv. 33-43.
- Kohl-Yakimoff, N.**, see **Yakimoff, W. L.**
- Korschann, J.** (1910), Beiträge zur Kenntnis des seuchenhaften Blutharnens der Rinder auf Grund eigener Beobachtungen und Untersuchungen. *Österr. Monatsschr. f. Tierheilk.*, xxxv. 481. Rev. in *Centralbl. f. Bakt.*, 1911, 1. Referate, 11-12. [*Ixodes ricinus* in relation to bovine piroplasmiasis in Mähren.]
- Künssberg, K. von** [née **Samson**] (1. IX. 1911), Eine Anticoagulindrüse bei Zecken. *Zool. Anzeiger*, xxxviii. 263-268, Figs. 1-2. [*Ornithodoros moubata*, with mention of *Ixodes ricinus*.]
- Laat, J. E. Van der** (1913), Las garrapatas, grave plaga que debe desaparecer. *Boletín Fomento*, San José, Costa Rica, iii. 259-263, 2 Pls. Rev. in *Rev. Applied Entomol.*, 1, ser. B, 159.
- Laboulbène and Mégnin** (1885), Les Argas du Mexique. *Journ. Anat. Physiol.*, xxi. [Cited by Bonnet, 1907.]
- Lahille, F.** (1909), Un viaje por el mundo de las garrapatas. *Revista del Jardín Zoológico de Buenos Aires*, vi. 203-219, Oct. 1909, 287-341, Figs. 1-20, Jan. 1910. [Cited in bibliogr. by Wolffhügel 1911.]
- (1911), La fecundidad de la garrapata comun del ganado y los varios periodos de su vida, su nombre científico. *Boletín del Ministerio de Agricultura*, xiii. 185-200. [Cited in bibliogr. by Wolffhügel, 1911.]
- (1913), Nota sobre *Ixodes* de la República Argentina y la medición de las Garrapatas. *Boletín del Ministerio de Agricultura*, Buenos Aires, reprint, pp. 2-14, 9 Figs. [*Ixodes nuttalli* n. sp.; 7 original figures illustrating *I. nuttalli*, *I. loricatus*.]
- (II. (1914), Nota sobre la presencia accidental en Buenos Aires de unas Garrapatas de Camello. *Bol. Minist. Agric. Buenos Aires*, xvii. 289-293, 3 Pls. [*Hyalomma aegyptium* found on camels imported from Dakar and from the Canary Islands.]
- Lamoureux, A.** (1913), Présence d'*Ornithodoros moubata* dans un foyer de fièvre récurrente à la côte ouest de Madagascar. *Bull. Soc. pathol. Exot.*, vi. 146-149.
- Laurie, D. F.** (1912), The Poultry Tick. *Dep't Agricult. of S. Australia*, Adelaide, Bull. No. 74, 32 pp., 31 Illustrations.
- Laveran, A., and Pettit, A.** (1910), Sur le rôle d'*Hyalomma aegyptium* L. dans la propagation de *Haemogregarina mauritanica* Ed. et Et. Sergent. *C. R. Ass. franç. Av. Sc.*, xxxviii. 723-726.
- Laws, H. E.** (1911), Note on the eradication of Ticks by the Starvation Method. *Agric. Journ. Union of South Africa*, i. 570-579.
- (V. 1911), Eradication of Ticks by the Starvation Method. (Second article.) *Agric. Journ. Cape of Good Hope*, xxxvii. 9-19.
- (VI. 1911), The eradication of Ticks by the Starvation Method. *Veterinary News*, London, viii. 343-345; 357-360.

Bibliography of the Ixodoidea. II LAW—LLO

- Laws, H. E.** (VI. 1913), The Tick-killing properties of Sodium Arsenate. *Agric. Journ. Union of S. Africa*, v. 915-921. Rev. in *Rev. Applied Entomol.*, I., ser. B, 152-153.
- (VII. 1913), How ticks are killed when cattle are dipped. *Agric. Journ. Union of S. Africa*, VI. 49-54. Rev. in *Rev. Applied Entomol.*, I., ser. B, 214-215.
- see **Cooper, W. F.**
- Laws, H. E., and Manning, B.** (1911), Eradication of Ticks by the Starvation Method. *Agric. Journ. Cape of Good Hope*, XXXVII. 9-17.
- Legislation** (16. VIII. 1913), To prevent the introduction of Fowl Ticks into Australia. *Commonwealth of Australia Gazette*, No. 57. Rev. in *Rev. Applied Entomol.*, I., ser. B, 189.
- Lehmann, R.** (1899), Die Rinderpest in Queensland und ihre Ursache. *Die Natur*, XLVIII. 412-413, 1 Fig. [*I. bovis*. Biology, chiefly development.]
- Leishman, W. B.** (1910), Observations on the mechanism of infection in Tick Fever, and on the hereditary transmission of *Spirochaeta duttoni* in the Tick. *Trans. Soc. Trop. Med. and Hyg.*, III. 77-95, 1 Pl. Discussion, pp. 96-106; also *Lancet*, I. 11-14; also (abstract) *Journ. Trop. Med.*, etc., XIII. 42-45. [Infection voided by tick in secretion of Malpighian tubules.]
- Levendian, H.** (1. IV. 1903), *Contribution à l'étude de l'Ixodes hexagonus Leach (son parasitisme chez l'homme)*. Thèse présentée et publiquement soutenue à la Faculté de Médecine de Montpellier. xii+40 pp., no Figs., 8°. Montpellier: Gustave Firmin, Montane et Sicardi.
- Lewallen, W. M.**, see **Graybill, H. W.**
- Lewis, R. T.** (1901), Copulation of *Ixodes reduvius*. *Journ. Roy. Microsc. Soc.* [Cited by Bonnet, A., 1907.]
- Lignières, J.** (1. III. 1903), Indicaciones sobre la aplicación práctica y económica de los baños garrapaticidas. *Bol. de Agric. y Ganad.*, Buenos Aires, III., 172-180.
- (VIII. 1909), Los progresos realizados en la lucha contra la garrapata. *Rev. Zootécnica y Bol. de Agric. y Ganad.*, Buenos Aires, I., No. 3. [Cited in bibliogr. by Wolffhügel, 1911.]
- (IX. 1909), Cuestiones de actualidad: la vacunación y revacunación en las zonas de garrapatas. *Rev. Zootécnica y Bol. de Agric. y Ganad.*, Buenos Aires, I. 123-124. [Cited in bibliogr. by Wolffhügel, 1911.]
- (1909), La profilaxis y la patología de las enfermedades protozoarias (piroplasmosis, tripanosomosis, etc. (con demostración de los parásitos específicos y de los animales transmisores (garrapatas, mosquitos, etc.). *I.º Congreso Int. d. Med. Veter. de la Haya. Sesiones generales*, 7 cuestión. *Revista Zootécnica y Bol. de Agric. y Ganad.*, Buenos Aires, I. 225-228; 264-269; 299-307 (Nov. 1909). [Cited in bibliogr. by Wolffhügel, 1911.]
- (1914), Maladies transmises par les Tiques: leur Classification, Traitement et Prophylaxie [followed by summaries in English and German]. *Xth Internat. Veterinary Congress, London*. Reprint 21 pp. [issued in advance of Congress].
- Lignières, J., and Zabala, J.** (15. IX. 1902), Estudio sobre la eficacia, ventajas é inconvenientes de los productos destinados á destruir la garrapata. *Bolet. de Agr. y Gan.*, Buenos Aires, III.; also *Ann. Soc. Rural. Argentina*, Buenos Aires, XXXVII. 435-438. [Cited in bibliogr. by Wolffhügel, 1911.]
- Lloyd, L.**, see **Kinghorn, A.**

Bibliography of the Ixodoidea. II LÖN—MAR

- Lönnberg, E.** (1912), see **Neumann, L. G.** (10. I. 1912).
- Lounsbury, C. P.** (1902a), Longevity of a species of tick. *Agric. Journ. Cape of Good Hope*, xx, 639-641.
- (1902b), The plague of ticks: their destruction by oil-spraying. *Veterinary Journ.*, London, n. s. vi, 361-367.
- Luchs, J.**, see **Dschunkovsky, E.**
- McAtee, W. L.** (1911a), Bird enemies of the Texas Fever tick and other ticks. *Auk*, xxviii, 136-138.
- MacCabe, F. F.** (1911), *Horse-mastership; a lecture with an appendix including some notes on the schooling of jumpers, the bacteriology of coughing, and the diseases carried by horse-flies, ticks, and tsetse flies.* London: Ballière, Tindall & Cox. 81 pp., 8°.
- McC Campbell, E. F.**, see **Phillips, J. M.**
- McClintic, T. B.** (1912), Investigations of, and tick eradication in Rocky Mountain Spotted Fever; a report of work done on Spotted Fever in co-operation with the State Board of Health of Montana. *Pub. Health Rept., U. S. Marine Hosp. Serv.*, Washington, xxvii, 732-760.
- MacDougall, R. S.** (1906), Insects and Arachnids in relation to the spread of disease. *Pharm. Journ.*, London, 4 s., xxii, 60.
- MacKellar, W. M., and Hart, G. H.** (1911), Eradicating cattle ticks in California. *Ann. Report, U. S. Dept. Agric., Bur. Animal Industry*, Washington, D. C., 283-300, 1 Pl.
- Mackie, F. P.**, see **Bruce, D.**
- McWeeney, E. J.** (II. 1899), Reports on recent bacteriological and hygienic researches. Koch's work on plague in Africa, Tsetse-fly disease and Texas fever. *Journ. State Medicine*, vii, 115-120.
- Malm, O.** (1904), Om blodparasiter. *Norsk Veterinaer-Tidsskrift*, xvi, 105-128, 1 Fig., reprint. [p. 113, Ticks briefly mentioned in connection with bovine piroplasmosis.]
- Manson, P.** (1903), Trypanosomiasis on the Congo. *Journ. Trop. Med.*, vi, 85-87. [*Ornithodoros.*]
- Manning, B.**, see **Laws, H. E.**
- Marchoux, E., and Couvy, L.** (II. 1912), Argas et spirilles. *Bull. Soc. Méd. Exotique*, Paris, v, 63-68. [*Argas persicus* in relation to *Spirochaeta gallinarum*.]
- (1912), Argas et spirochètes. *Bull. Soc. Pathol. Exot.*, v, 796-798.
- (25. VI. and 25. VIII. 1913), Argas et Spirochètes. *Ann. Inst. Pasteur*, xxvii, No. 6, 453-480, 15 Figs.; No. 8, 620-643. Rev. in *Rev. Applied Entomol.*, 1, ser. B, 215-216.
- Marek, J.**, see **Hutyra.**
- Marès, R.** (15. I. 1911), La lutte contre la Piroplasmose; Extermination des Tiques. *Bull. Agricole d. l'Algérie et d. l. Tunisie*, 17^e Année, No. 2, 36-45.
- (15. II. 1911), La lutte contre la Piroplasmose (suite et fin). *Ibid.*, No. 4, 80-99.
- Marzinowski, E. J.** (1910), Die Verbreitung der Krankheiten durch Insekten und Zeckenstiche. Rés., pt. 2, 134. *Biol. Journ., Moscow*, 1, pt. 2, 117-134.
- (VI. 1914), Роль насекомых въ распространении заразныхъ болезней. [The rôle played by insects in spreading infectious diseases.]—"Природа."

Bibliography of the Ixodoidea. II MAS—MÉG

- [Nature], St. Petersburg (?), pp. 714-735, 14 Figs. [Piroplasmosis of cattle transmitted in Russia by *I. ricinus*, piroplasmosis of horses by *Dermacentor reticulatus*. *Ornithodoros tholozani* transmits a disease resembling recurrent fever, in Transcaspia. Spirochaetosis of geese transmitted by *Argas persicus*, in Caucasia. Rev. in *Rev. of Applied Entomol.* s. B, Med. and Veter., II. 119.]
- see Bielitzer, A. W.
- Massey, A. Y.** (1908), Some ticks of Central Africa. *Journ. Trop. Med.*, XI. 70.
- Mathis** (1909), La piroplasmose canine au Tonkin. *Bull. Soc. pathol. Exot.*, II. 380.
Rev. in *Arch. f. Schiffs- u. Tropen-Hyg.*, XIV. 787.
- Maurizio, A.** (1910), Von den Zecken als Krankheitsüberträger. *Schweiz. landwirtsch. Zeitschr.* Jahrg. XXXVIII. 1203-1206.
- Maver, M. B.** (IV. 1911), Transmission of spotted fever by other than Montana and Idaho ticks. *Journ. Infect. Diseases*, VIII. 322-326. [Experiments with *Dermacentor marginatus* Banks, *D. variabilis* (Say), and *Amblyomma americanum* L. gave positive results.]
- (IV. 1911 a), Transmission of spotted fever by the tick in nature. *Journ. Infect. Diseases*, VIII. 327-329; also in Ricketts, H. T., *Contributions to Medical Science*. [Experiments with *Dermacentor modestus* and *D. venustus*.]
- (1911), Transmission of Spotted Fever by other than Montana and Idaho Ticks. *Journ. Infect. Dis.*, VIII. 322-326; also in Ricketts, H. T., *Contributions to Medical Science*, Chicago, pp. 440-444.
- Maxey, E. E.** (XII. 1908). Rocky Mountain Spotted (Tick) Fever, with special reference to casual factors, mortality and geographical distribution in Idaho. *Med. Sentinel*, Portland, Oreg., U. S. A., xvi. 666-678. (Discussion, 704-711.)
- Mayer, A.** (1911), Über die Wirkung des tellursäuren Kaliums als Fliegenmittel. *Monatschr. f. prakt. Tierheilk.*, XXIII. 49. Rev. in *Centralbl. f. Bakt.*, 1912 (Referate), LII. 92-93. [Potassium tellurate *per os* produces a garlicky odour emanating from the skin which is stated to repel ticks; remedy too expensive for practice, costing 8.50 Marks for 10 grammes.]
- Mayer, M.** (1911), Tropenhygiene und Tropenkrankheiten auf der Internationalen Hygiene-Ausstellung zu Dresden. *Arch. f. Schiffs- u. Tropen-Hyg.*, xv. 785-788.
- Mayo, N. S.** (VI. 1906), Dips for cattle ticks. *American Veter. Rev.* Abstract in *Journ. Trop. Veter. Sci.*, Calcutta, I. 453-454.
- 1907, Texas fever and the cattle tick. *Estacion Cent. Agron. de Cuba*, Bull. 6, 31 pp., 7 Pls., 9 Figs.
- Meek, A., and Greig-Smith, R.** (1897), On louping-ill and its connection with the tick. *Veterinarian*, London, LXX. 698-709. [Experimental evidence supposedly proving that *Ixodes* is the means of communicating the disease. Re-statement of the life-history of the parasite.]
- Meek, A.**, see Greig-Smith, R.
- Mégnin, P.** (1881), *Argas reflexus* (Latr.). *Bull. Séances d. l. Soc. Entomol. France*, 6 ser., Paris, I. 54. [Cited by Metz, 1911, p. 3, as stating that *A. reflexus* must be rare, but he soon had to retract the statement, as it was afterwards found commonly about Paris.]
- (1883), La Garrapata du Mexique. *Naturaliste*, p. 309.
- (1893), *Médecine des Oiseaux*, 2nd ed. [Ticks: p. 281, Fig. Reference supplied by J. C. Huber.]

Bibliography of the Ixodoidea. II MÉG—MÜL

- Mégnin, P.**, see **Laboulbène**.
- Melvin, A. D., and Price, T. M.** (1906), The preparation of emulsions of crude petroleum. *U. S. Dep't Agric., Bur. Anim. Industry, Circular No. 89*. Abstracts in *Journ. Trop. Veter. Sci.*, Calcutta, 1906, i, 454-457.
- Mense, C.** (1913), *Handbuch der Tropenkrankheiten*, 1 Bd., 2 Auflage. Leipzig: Verlag von J. A. Barth. 295 pp., 12 Pls., 200 Text-figs. 27 × 19 cm. [Ticks, pp. 8-39, Figs. 2-43.]
- Merriman, G.** (18. VII. 1911), The geographical distribution of *Ornithodoros moubata* (Murray, 1877). *Parasitology*, v, 168-173, with a Map. [Summary of our present knowledge regarding the distribution of *O. moubata*.]
- see **Hindle, E.**
- Mesnil, F.** (1913), Mouches et autres insectes porteurs de maladies infectieuses. Rapports entre les microorganismes et les insectes qui leur servent d'hôtes. *Trans. 15th Internat. Congr. Hygiene and Demography*, Washington, D.C., 23-28, ix, 1912; iv, pp. 185-202. [Brief reference to Ticks, pp. 189-190, 197, 201.]
- Metz, K.** (1911), *Argas reflexus*, die Taubenzecke (Eine monographische Studie). Inaug. Dissert. z. Erlang. d. veter.-med. Doktorw. Giessen. Reprinted from *Monatsh. f. prakt. Tierheilk.*, xxii, 481-510, 39 pp., 1 pl. [Photographs of *A. reflexus* ♂ and ♀, poor; bibliography (partial); contains interesting matter.]
- Michael, A. D.** (1899), Acari [of Lake Urmi]. *Journ. Linn. Soc. London, Zool.* xxvii, 407, 1 Pl. [*Argas persicus* = *A. reflexus*.]
- Minett, E. P., and Field, F. E.** (1913), Notes on a case of dermal Leishmaniasis in British Guiana. *Brit. Guiana Med. Annual for 1912*, Letchworth: Garden City Press, pp. 96-98. [The patient, a negro, attributed the infection to ticks which had bitten him severely whilst in the bush.]
- Mitchell, J. D.**, see **Hunter, W. D.**
- Mohler, J. R.** (21. III. 1914), Texas or Tick Fever. *U. S. Dep't Agric.*, Washington, D.C., *Farmers' Bull.* No. 569, 24 pp., 4 Figs., 1 Map. Rev. in *Review Applied Entomol.*, II., ser. B: Med. and Veter. (vi. 1914), pp. 101-104. [*Boophilus annulatus* referred to.]
- Möllers, R.** (1908), Insekten und Zecken als Krankheitsüberträger für Menschen und Tiere. *Berl. klin. Wochenschr.*, xlv, 657-660.
- Moore, J. J.** (iv. 1911), Time relationship of the Wood Tick in the transmission of Rocky Mountain Spotted Fever. *Journ. Infect. Diseases*, viii, 339-347; also in Ricketts, H. T., *Contributions to Medical Science*, Chicago. [Experiments with *Dermacentor modestus* and *D. venustus*.]
- Moore, W.** (1912), The tick problem in South Africa. *Journ. Econ. Entomol.*, v, 377-384.
- Morstatt, H.** (x. 1913), Liste der blutsaugenden Fliegen und Zecken. *Der Pflanze*, Dar-es-Salaam, ix, No. 10, 507-510, 1 Pl. Rev. in *Review Applied Entomol.*, II., ser. B: Med. and Veter. (iii. 1914), 43. [List of ticks of German East Africa: *Argasidae*—1 sp., *Ixodidae*—32 spp., chiefly based on S. A. Neave's list in *Bull. Ent. Res.* iii, 316.]
- Moulé, L.** (1912-13), La parasitologie dans la littérature antique; parasites de la peau et des tissus sous-jacents. *Arch. d. Parasitologie*, xv, 543-595.
- Müller, C.** (1896), Die Zeckenplage in den Tropen. *Geogr. Zeitschr.*, ii, 674-679.
- Müller, M.** (1910), Arthropoden als Krankheitsüberträger. *München. med.*

Bibliography of the Ixodoidea. II NEA—NEU

Wochenschr., No. 46. [A three-line notice in *Arch. f. Schiff's- u. Tropen-Hyg.*, xv. 404, states that this address contains a good survey of the subject.]

Neal, D. C., see Hibbard, R. P.

Neave, C. A. (1911-12), *Report of the Department of Agriculture, Nairobi, British E. Africa*, 1911-12. Rev. in *Rev. Applied Entomol.*, i., ser. B, 21-22.

Neave, S. A. (1911), Report on a Journey to the Luangwa Valley, North-Eastern Rhodesia, from July to September, 1910. *Bull. Entomol. Res.*, i. 1910-11, 303-317. With 7 Text-figs. and Map. [Brief mention of occurrence of *Ornithodoros moubata* on pp. 313 and 316.]

— (1912), Notes on the Blood-sucking Insects of Eastern Tropical Africa. *Bull. Entomol. Res.*, III. 275-324, Pls. X and XI. [Ticks—in *Local lists of Blood-sucking Arthropods*; also native names of certain species.]

Neumann, L. G. (1908), A new Indian Tick, *Ornithodoros lahoriensis*. *Journ. Trop. Veter. Sci.*, Calcutta, III. 462-467, 4 Figs. [Merely a partial translation of Neumann, III. 1908, Note VI (pp. 17-21), with a sketchy coloured plate showing *O. lahorensis* in dorsal and ventral aspect. The name misspelt "*lahoriensis*."]

— (1909) *Parasites et maladies parasitaires des oiseaux domestiques*, 230 pp., 89 Text-figs. Paris: Asselin et Houzeau. [Ticks: briefly describes *Argas*, pp. 55-61; Figs. 36-38 of *A. reflexus* capitulum, and ♀ in dorsal and ventral aspects; p. 38 Ixodidae defined.]

— (1910a), Description de deux nouvelles espèces d'Ixodinae. (*Aponomma oude-mansi* n. sp. ♂, *Rhipicephalus deltoideus*, n. sp. ♂ ♀.) *Tijdschrift voor Entomologie*, LIII. 10-17, Pl. I, reprint.

— (1910b), Ixodidae. *Wiss. Ergebn. schwed. zool. Exped. Kilimandjaro*, III., Abt. 20, 17-30. [Three un. subsp. of *Ixodes*, *Rhipicephalus*, *Dermacentor*.]

— (1911a), Ixodidae in *Das Tierreich*, herausg. v. T. E. Schulze, im Auftrage der K. Preuss. Akad. d. Wiss. zu Berlin. Berlin: R. Friedländer & Sohn. 26. Lieferung, xvi+169 pp., 76 Text-figures. [Important.]

— (1911b), Note rectificative à propos de deux espèces d'Ixodinae. *Archiv d. Parasitologie*, XIV. p. 415. [*Ixodes stilesi* n. nom. pro *I. elegans* Neum. non Guérin.]

— (1911c), Note sur *Dermacentor reticulatus* Fabricius. *Insecta Ann.*, i. 40, 41. Observation d'une malade piquée par un *Dermacentor reticulatus* Fabricius, par Stephen Frasc, 41-42.

— (10. I. 1912), in Lönnberg, E. (1912), Scorpions, Solpugids and Ixodides collected by the Swedish Zoological Expedition to British East Africa, 1911: *Ixodides* by L. G. Neumann, *Arkiv för Zoologi*, VII., No. 4, reprint, pp. 4-8. [Known species listed: *Rhipicephalus appendiculatus*, *R. armatus*, *R. pulchellus*, *R. sanguineus*, *R. sinuatus*; *Hyalomma aegyptium*; *Amblyomma hebraeum*, *A. mar-moreum*; *Dermacentor rhinocerotis*; *Ornithodoros surignyi*.]

— (1. VI. 1913), H. Sauter's Formosa-Ausbeute. Pediculidae, Siphonaptera, Ixodidae. *Supplementa Entomologica* herausg. vom Deutschen Entomol. Museum, No. 2, pp. 134-137, 2 Text-figs. Berlin-Dahlem. [*Argas vesper-tilionis*, *Amblyomma testudinarium* Koch, *Dermacentor atrosignatus* Nn., *Boophilus annulatus*, *Rhipicephalus sanguineus*, and *Haemaphysalis birmanica* recorded; *H. formosensis* n. sp., ♂ and ♀, described and figured.]

— (1913), Un nouveau sous-genre et deux nouvelles espèces d'ixodides. *Bull. Soc. Zool. France*, XXXVIII. 147-151, 4 Figs. (*Rhipicephalus* [*Pterygodes*] *fulvus* ♂

Bibliography of the Ixodoidea. II NEU—NUT

- described and figured from Tunisia, also *Amblyomma brimonti* ♀ from Guiana ; *Ambl. goeldii* Nn. and *A. geayi* listed from Guiana.)
- Neumann, L. G.** (XI. 1913), Arachnides. I. *Ixodidae*. (In Voyage de Ch. Alluaud et R. Jeannel en Afrique orientale (1911–1912). Résultats scientifiques. Pp. 25–35, 5 Text-figs., reprint. Paris: A. Schulz. [*Ixodes alluaudi* n. sp., *Rhipicephalus jeanneli* n. sp. and known sp. of *Ixodes*, *Haemaphysalis*, *Dermacentor*, *Amblyomma*, and *Rhipicephalus*.])
- Neumann, R. O.** (2. III. 1909), Ueber das Verhalten der Spirochäten des Rückfallfiebers im Tierkörper und die experimentelle Uebertragung der Parasiten durch Zecken und Läuse. *München. med. Wochenschr.*, LVI. 477. [*Ornithodoros moubata* transmits *S. duttoni* and *S. gallinarum* to rats and fowls respectively. Some unfed nymphs survived seven months at 25° C.]
- Neveu-Lemaire, M.** (1912), *Parasitologie des animaux domestiques*, 1257 pp., 770 Text-figs. Paris: J. Lamarre et Cie. [Ticks: pp. 962–994, Figs. 606–639, of which two are doubtfully original.]
- Newstead, R.** (1906), On the bionomics of *Ornithodoros moubata*, the intermediary host of human tick fever. *Proc. Assoc. Econ. Biol.*, i. 74–77.
- Newstead, R., Dutton, J. E., and Todd, J. L.** (1907), Insects and other Arthropoda collected in the Congo Free State. (Being the 7th Interim Report of the Expedition of the Liverpool School of Tropical Medicine in the Congo, 1903–05.) *Ann. Trop. Med. and Parasitol.*, i. 1–112, Pl. 1–VI, 21 Text-figs. [Ticks: pp. 98–100, *Amblyomma hebraeum* Koch; *A. splendidum* Giebel; *A. variegatum* (Fabr.); *Hyalomma aegyptium* L.; *Haemaphysalis leachi* (Audouin); *Margaropus annulatus*; *M. annulatus* var. *calcaratus* (Birula); *Rhipicephalus bursa* Can. and Fan.; *R. capensis* Koch; *R. nitens* Nn.; *R. simus* Koch; *R. sanguineus* (Latreille.)]
- Niles, E. P.** (1901), Animal Parasites, VII. *Agric. Exp. Sta., Virginia, Bull.* 114, 83–95, 5 Figs.
- Noc**, see **Simond, A.**
- Noel, P.** (1904), *E. Acarus telarius*. *Naturaliste*, Paris, xxvi. 131.
- (1906), *E. Argas reflexus*. *Naturaliste*, Paris, xxviii. 132–133.
- (1909), Les *Argas* de l'instituteur. *Naturaliste*, Paris, xxxi. 146–147.
- (1910), Coast Gall-sickness—Cattle. *Agricult. Journ., Cape of Good Hope*, xxxvii. 455–458.
- Nordenskiöld, E.** (1911), Zur Anatomie und Histologie von *Ixodes ricinus*, III. *Zool. Jahrb.*, xxxii. 77–106, Text-figs. A–C, Pls. VI–VII.
- Nuttall, G. H. F.** (1904), Ticks and Tick-transmitted Diseases (Epidemiolog. Soc.). *The Lancet*, CLXVII. 1785–1786.
- (1910), On Haematozoa occurring in wild animals in Africa. *Parasitology*, 108–116, 2 Pls.
- New species of ticks (*Ixodes*, *Amblyomma*, *Rhipicephalus*). *Parasitology*, III. 408–416, 7 Figs.
- (V. 1911), On symptoms following tick-bites in man. *Parasitology*, iv. 89–93. [Effects due to the bite of *Amblyomma hebraeum* and *Boophilus decoloratus* larvae reported to author from various sources.]
- (X. 1911), Notes on Ticks, I. (1) *Ixodes caledonicus*, description of male, together with considerations regarding the structure of the foot in male *Ixodes*. (2) Types of parasitism in ticks, illustrated by a diagram, together with some

Bibliography of the Ixodoidea. II NUT—O'FA

remarks upon longevity in ticks. (3) Regarding the loss of life in ticks occurring on wandering hosts. *Parasitology*, iv. 175-182, 2 Figs.

- Nuttall, G. H. F.** (II. 1912), Russian Ixodoidea. *Bull. Soc. Méd. Ecotique*, Paris, v. 120-122. (Critical remarks and corrections relating to a paper by Yakimoff, Winogradoff and Kohl-Yakimoff. *Bull. Soc. Méd. Ecotique*, Paris, v. pp. 34-41.)
- (II. 1912a), Notes on Ticks, II. (1) New Species (*Amblyomma*, *Haemaphysalis* ; (2) *Ixodes putus* : description of the hitherto unknown larval stage. *Parasitology*, v. 50-60, 9 Figs.
- (II. 1913), The Herter Lectures. I. Spirochaetosis. *Parasitology*, v. 262-274 ; also *Johns Hopkins Hosp. Bull.*, xxiv. 33-39, 9 Figs. [Ticks and spirochaetosis.]
- (IV. 1913a), Note on colouration in Ticks. *Parasitology*, vi. 49-51, 1 Pl.
- (IV. 1913 b), Observations on the Biology of Ixodidae. Part I. Dealing with : *Ixodes putus* (Pickard-Cambridge, 1876), Neumann, 1899. (2) *Ixodes canisuga* Johnston, 1849. (3) *Ixodes hexagonus* Leach, 1815. (4) *Ixodes ricinus* (Linnaeus, 1758), Latreille, 1804. (5) *Haemaphysalis leachi* (Audouin, 1827), Neumann, 1897. (6) *Haemaphysalis punctata* Canestrini and Fauvaz, 1877. (7) *Hyalomma aegyptium* (Linnaeus, 1758), Koch, 1844. (8) *Rhipicephalus appendiculatus* Neumann, 1908. *Parasitology*, vi. 68-118, 2 Text-figs.
- (VII. 1913a), Notes on Ticks. III. On four new Species of *Ixodes*. *Parasitology*, vi. 131-138, 4 Figs. [*I. kempzi*, *I. daveyi*, *I. oldi*, *I. ricinoides* n. spp.]
- (VII. 1913 b), Parthenogenesis in Ticks. (Preliminary Note.) *Parasitology*, vi. 139-140.
- (VII. 1913c), *Rhipicephalus appendiculatus*: Variation in Size and Structure due to Nutrition. *Parasitology*, vi. 195-203, 4 Figs.
- (X. 1913), The Herter Lectures. III. Piroplasmosis. *Parasitology*, vi. 302-320 ; also *Johns Hopkins Hosp. Bull.*, xxiv. 307-316, 22 Figs. [Ticks referred to.]
- (14. v. 1914), "Tick Paralysis" in man and animals. Further published records, with comments. *Parasitology*, vii. 95-104.
- Nuttall, G. H. F.**, see **Hadwen, S.**
- Nuttall, G. H. F.**, and **Hindle, E.** (X. 1913), Conditions influencing the transmission of East Coast Fever. *Parasitology*, vi. 321-332. [*Rhipicephalus appendiculatus* experiments.]
- Nuttall, G. H. F.**, **Robinson, L. E.**, and **Cooper, W. F.** (VII. 1911), *Bibliography of the Ixodoidea*, pp. vi+68. [2004 titles of publications dealing with ticks and their relation to disease]; in Nuttall, Warburton, Cooper and Robinson: *Ticks. A Monograph of the Ixodoidea*. Cambridge University Press.
- Nuttall, G. H. F.**, and **Warburton, C.** (v. 1911), *Ixodoidea Section I. Classification. Section II. The Genus Ixodes*, pp. xix+348, 4 plates, 193 text-figs., including two Appendices by Nuttall and Merriman ; in Nuttall, Warburton, Cooper and Robinson: *Ticks. A Monograph of the Ixodoidea*. Cambridge University Press.
- O'Farrell, W. R.** (1913), Preliminary note on a new Flagellate, *Crithidia hyalommarum* sp. nov. found in the tick, *Hyalomma aegyptium* (Linnaeus, 1758). *Journ. Trop. Med.*, xvi. 245.
- (XII. 1913), Hereditary Infection, with special reference to its occurrence in *Hyalomma aegyptium* infected with *Crithidia hyalommarum*. *Ann. Trop. Med. and Parasitol.*, vii. 545-562, Pls. XXXVIII-XL.

Bibliography of the Ixodoidea. II OLD—PIX

- Old, J. E. S.** (15. I. 1909), Contribution to the study of trypanosomiasis and to the geographical distribution of some of the blood-sucking insects, etc. *Journ. Trop. Med. and Hyg.*, London, XII, 15-22; reprinted in *Journ. Trop. Veter. Sci.*, Calcutta, iv, 395-416. [Pp. 411-415 relate to ticks found by the author in Nyasaland, the same having been examined by Nuttall and Warburton.]
- Olivier, E.** (1908), Une invasion d'*Argas reflexus*. *Bull. Soc. entomol. France*, 1908, 238.
- Oudemans, A. C.** (1910a), Over Acarina. *Tijdschr. Entomol.*, LIII, 62-64. (Rudimentary stigmata in larvae of Ixodidae.)
- (1910b), Acarologische Aanteekeningen, XXXIV. Zijn Argasidae jonger of ouder dan Ixodidae? *Entomol. Berichten*, III, 103-109.
- (1910c), A short survey of the more important Families of Acari. *Bull. Entomol. Res.*, I, 105-119, 22 Figs. [Pp. 106-108, brief mention of ticks, with two poor figures of *Rhipicephalus sanguineus* ♀ and *Ornithodoros moubata* ♀ respectively.]
- Pagenstecher** (1859-1862), Ueber *Argas reflexus*, *Verhandl. d. naturhist. med. Vereins zu Heidelberg*, II, 122. (Cit. Metz, 1911, bibl.)
- Pavesi, P.** (1883), Considerazioni sull' acarofauna dell' Abissinia. *Rendiconti del R. Istituto Lombardo*, ser. II, XVI, fasc. IX., reprint, 5 pp.
- Pease, H. T.** (x. 1908), Spirochaetosis in Fowls due to the Fowl Tick (*Argas persicus*). *Agric. Journ. of India*, III, (pt. IV.), 309-322, Text-figs. 4-7.
- Pakes, W. C. C.** (1912), *The Science of Hygiene*. A Text-book of Laboratory Practice for Public Health Students. New Edition, revised by A. T. Nankivell, M.D., D.P.H. Methuen & Co. Ltd., London. 164 pp., 80 Figs., 20×13 cm. [P. 141, Ticks referred to in 14 lines, an incredibly bad figure supposed to represent *Ixodes ricinus*. Grave misstatements.]
- Panzer** (), *Deutschlands Insekten, Krustaceen und Arachnoideen*. Fortsetzung, Heft 189, No. 1. [According to Metz, 1911, p. 2, contains the first reference in German literature to *Argas reflexus*, which had been stated to occur only in France and Italy.]
- Pentz, J. F.** (1910), Ticks and Stock Diseases. *Agric. Journ. Cape of Good Hope*, XXXVI, 475-477.
- Petersen, W. F.**, see Davis, B. F.
- Pettit, A.**, see Laveran, A.
- Phillips, J. M., and McCampbell, E. F.** (1908), Infectious Jaundice due to *Piroplasma commune*. *Centralbl. f. Bakt.*, 1. Abt., Orig., XLVII, 592-608, 1 Pl., 4 Figs., 1 Chart. [? Pseudoparasites—negative "transmission experiments" with *Dermacentor occidentalis* and fleas.]
- Pickard-Cambridge, O.** (1876), On a new Order and some new Genera of Arachnida from Kerguelen's Island. Family Ixodides. *Proc. Zool. Soc. Lond.*, pp. 260, 261, Fig. 1.
- (VI. 1885), A contribution towards the knowledge of the Arachnida of Epping Forest. *Trans. Essex Field Club*, IV., pt. 1, pp. 41-49. [Records *Ixodes ricinus* on bushes and trees, p. 45.]
- Piot Bey, J. B.** (1914), Maladies transmises par les Tiques. *Xth Internat. Veterinary Congress, London*. Reprint 7 pp. [issued in advance of Congress].
- Pixell, H. L. M.** (1913), Notes on *Toxoplasma gondii*. *Proc. Roy. Soc., London*, LXXXVII, s. B, 67-77, 1 Pl.

Bibliography of the Ixodoidea. II POC—REN

- Pocock, R. T.** (1911), "Ticks" in *Encycl. Britannica*, 11th ed., vol. xxvi, pp. 936–937, 1 Fig. [Short account of ticks containing some erroneous statements, i.e. that the hypostome is used for piercing the skin of the host; *monbata* is misspelt *monbata*; *Argas persicus* is stated to have been carried from Europe (!) to S. Africa; *Dermacentor reticulatus* is stated to transmit canine piroplasmosis and possibly Rocky Mountain Fever; heartwater and piroplasmosis in sheep are confused; *ricinus* is misspelt *vicinus*. The inaccurate figure of *Hyalomma aegyptium* ♂ is copied from Savigny (1826 !).]
- Poisot**, see **Balzer**.
- Pons, C.**, see **Rodhain, J.**
- Power, W. M.**, see **Theiler, A.**
- Price, T. M.**, see **Melvin, A. D.**
- Prowazek, v.** (1906), Morphologische und entwicklungsgeschichtliche Untersuchungen über Hühnerspirochäten. *Arb. u. d. Kais. Gesundheitsamte*, xxiii. 554.
- R.** (? 1914), *Os carrapatos sob ponto de vista agricola*. (Ticks from the agricultural point of view.) *Chacaras e Quintaes, S. Paulo*, vii. 43–48, 2 Figs. Rev. in *Review of Applied Entomology*, vol. II, ser. B (iv. 1914), p. 57. [*Rhipicephalus sanguineus* and *Boophilus annulatus* in Brazil; bovine piroplasmosis and trypan-blue treatment.]
- Rainbow, W. J.** (1906), A synopsis of Australian Acarina. *Records of the Australian Museum*, vi. 145–193. [Pp. 163–171. Ixodoidea occurring in Australia are listed together with their hosts. Listed are *Argas reflexus*, *A. persicus*, *Huempysalis papuana*, *H. leachi*, *H. longicornis* Nn., *Boophilus annulatus*, *B. australis*, *Ixodes ornithorhynchi*, *I. tasmani*, *I. holocyclus*, *Aponomma trimaculatum*, *Ap. decorosum*, *Ap. hydrosauri*, *Ap. concolor*, *Ap. ecinctum*, *Amblyomma triguttatum*, *A. limbatum*, *A. postoculatum*, *A. moreliae*. Mostly taken from Neumann.]
- Ransom, B. H., and Graybill, H. W.** (1912a), Investigations relative to arsenical dips as remedies for cattle ticks. *U. S. Dep't Agricult., Bur. Animal Industry*, Washington, D.C., *Bull.* 144, 65 pp., 6 Pls., 1 Fig., reprint.
- (1912b) The use of arsenical dips in tick eradication. *U. S. Dep't Agric., Bur. Anim. Industry*, Washington, D.C., 267–284, 7 Pls.
- Rawson, L.** (1899), The Poultry Bug or Tick (Austral. Tropicult.). *Queensland Agric. Journ.*, iv., 355–356, 443–445.
- Raymondaud** (1886), Sur l'*Ixodes*, parasite peu connu de l'homme. *Congr. périod. internat. d. sc. méd. Compt.-rend.*, Copenhagen (1884), I, Sect. de path. gén., etc., 48–64.
- Reiber** (1882), Note sur l. zool. d. l. cathedr. de Strasbourg. *Bull. Soc. II. N. Colmar*, 22 and 23, pp. 215.
- Reichert** (1910), *Ueber Linimente (Kreolin; Kresol-, und Wiener Teerliniment, und deren klinische Bedeutung*. Inaug. Dissert. Giessen. [Cited by Metz, 1911, p. 16, as having apparently been the first to test insecticides on *Argas reflexus*, but only mentions it incidentally.]
- Relation** (1890) of Ticks to Texas Cattle Fever. *Report Secretary of Agriculture*, Washington, D.C., 107–110.
- Rengarten** (iv. 1895), [Reisebericht über *Argas persicus*.] *Neue Dörpt'sche Zeitung*, Dorpat. [Cited by Kobert, q.v.]

Bibliography of the Ixodoidea. II REP—RUC

- Report** (1. VII. 1913), of the Tasmanian Agricultural and Stock Department. Hobart, Tasmania, p. 14. Rev. in *Rev. Applied Entomol.*, II, ser. B, 1.
- Ribaga, C.** (1902), Acari sudamericani. *Zool. Anz.*, xxv. 502-508. [*Amblyomma neumanni* n. sp.]
- Ricketts, H. T.** (1911a), The transmission of Rocky Mountain Spotted Fever by the bite of the Wood Tick, *Dermacentor occidentalis*. In *Contributions to Medical Science*, Chicago, 288-290.
- (1911b), Further observations on Rocky Mountain Spotted Fever and *Dermacentor occidentalis*. In *Contributions to Medical Science*, Chicago, 291-298.
- (1911c), Observations on the virus and means of transmission of Rocky Mountain Spotted Fever. In *Contributions to Medical Science*, Chicago, 299-311.
- (1911d), The rôle of the Wood Tick (*Dermacentor occidentalis*) in Rocky Mountain Spotted Fever, and the susceptibility of local animals to this disease. In *Contributions to Medical Science*, Chicago, 312-323.
- (1911e), Further experiments with the Wood Tick in relation to Rocky Mountain Spotted Fever. In *Contributions to Medical Science*, Chicago, 324-332.
- (1911f) A summary of investigations of the nature and means of transmission of Rocky Mountain Spotted Fever. In *Contributions to Medical Science*, Chicago, 333-342.
- Ricketts, H. T., and Wilder, R. M.** (1910), The relation of Typhus Fever (Tabardillo) to Rocky Mountain Spotted Fever. *Arch. Internal Med.*, v. 361-370.
- Robertson, W.** (1902), Heartwater in Sheep and Goats, *Agric. Journ. Cape of Good Hope*, xxi. 315-335.
- Robinson, L. E.** (xii. 1911), New species of Ticks (*Haemaphysalis*, *Amblyomma*). *Parasitology*, iv. 478-484, 4 Text-figs. [Description of *Haemaphysalis silacea* n. sp. ♂ ♀; *Amblyomma curiegatum* var. *nocens* n. var. ♂; and *A. fiebrigi* n. sp. ♂ ♀.]
- see **Nuttall, G. H. F.**
- Robinson, L. E., and Davidson, J.** (17. IV. 1913), The Anatomy of *Argas persicus* (Oken, 1818). Part I. *Parasitology*, vi. 20-48, Pls. I-VI, 31 figs., 2 text-figs. [Introduction, pp. 20-24; External Anatomy, pp. 24-45.]
- (13. X. 1913), The Anatomy of *Argas persicus* (Oken, 1818). Part II. *Parasitology*, vi. 217-256, Pls. XIV-XVII (2 coloured), 17 figs., 8 text-figs. [Technique, pp. 217-220; Integument, pp. 220-222; Alimentary Canal, pp. 222-241; Blood Vascular System, pp. 241-245; Respiratory System, pp. 245-250; Excretory System, pp. 250-252.]
- (31. I. 1914), The Anatomy of *Argas persicus* (Oken, 1818). Part III. *Parasitology*, vi. 382-424, Pls. XXV-XXVIII (1 coloured), 19 figs., 8 text-figs. [Muscular System, 382-394; Nervous System, 394-402; Genital Organs, 402-420.]
- Rodhain, J., Pons, C., Van den Branden, F., and Bequeart, J.** (1913), *Rapport sur les travaux de la mission scientifique du Katanga* (Oct., 1910-Sept., 1912). Bruxelles: Hayez. [Pp. 7-27; relates to relapsing fever; refers to geographical distribution of *Ornithodoros moubata*; notes a few fresh localities along Lualaba R. and Katanga district of S. Congo.]
- Rucker, W. C.** (6. IX. 1912), Rocky Mountain Spotted Fever. *U. S. Public Health Reports*, xxvii, No. 36, reprint, 21 pp. [History, distribution, symptoms, pathology, etc.; *Dermacentor andersoni* Stiles 1905 description, biology, prophylaxis. A good bibliography.]

Bibliography of the Ixodoidea. II SAC—SIM

- Saceghem, R. van** (III. 1914), Les Tiques. Les maladies qu'elles transmettent ; les moyens de les détruire. *Bull. Agric. du Congo Belge*, v. 73-87. Rev. in *Rev. of Applied Entomol.* s. B, Med. and Veter., II. 111-115. [A historical review ; species listed of *Amblyomma*, *Boophilus*, *Hacmaphysalis*, *Rhipicephalus* ; tick eradication.]
- Saikovitsch, J. W.** (1911), Ueber Rinderpiroplasmose im Rjasanschen Gouvernement. *Vestnik obsch. Veterinariï*, No. 2 (Russian), 4-line review in *Zeitschr. f. Immunitätsforsch.* II. Teil, vol. IV. p. 135, states piroplasmosis occurs in this part of Russia, being transmitted by *I. ricinus*.
- Salmon, D. E.** (1910), Should we discard "*Boophilus*" for "*Margaropus*"? *Amer. Vet. Review*, New York, XXXVIII. 230-232.
- Samson, K.** (1910), Zecken als Krankheitsüberträger. *Nat. Wochenschr.*, XXV. 721-725, 3 Figs.
- Sant' Anna, J. F.** (VI. 1911), On a disease in man following tick-bites and occurring in Lourenço Marques. *Parasitology*, IV. 87-88. [Effects due to bites of larvae of *Amblyomma hebraeum* and *Rhipicephalus simus*.]
- Schellack, C.** (1909a), Übertragungsversuche der *Spirochaeta gallinarum* durch *Argas reflexus* Fabr. *Centralbl. f. Bakt.*, XLVI. 1 Abt. Originale, 486-488. Rev. in *Arch. f. Schiffs- u. Tropen-Hyg.*, XIII. 161.
- (1909b), Versuche zur Übertragung von *Spirochaeta gallinarum* und *Spirochaeta obermeieri*. *Arb. a. d. Kais. Gesundheitsamte*, XXX. 351. Rev. in *Arch. f. Schiffs- u. Tropen-Hyg.*, XIV. 388.
- Schroeder, E. C.** (1907), Notes on the cattle tick and Texas fever. 22nd Ann. Rep. Bur. Anim. Indust., U. S. Dept. Agric., pp. 49-50.
- Schuberg, A., and Böing** (1913), Ueber den Weg der Infektion bei Trypanosomen- und Spirochätenerkrankungen. *Deutsche med. Wochenschr.*, XXXIX. 877-879. Rev. in *Centralbl. f. Bakteriöl.*, LVII. Referate, Beihefte, 226-230.
- Schuckmann, W. von** (1913), "Die schmarotzenden Gliederfüssler," in *Handb. d. Hygiene*, herausg. v. M. Rubner, M. v. Gruber and M. Ficker. Leipzig : S. Hirzel. Vol. III. pp. 342-370. [Ticks : pp. 352-359, Figs. 181, 182, Pl. XXXII. Nothing original, figures poor and antiquated.]
- Schütz, W.** (1905), Ueber die Pyrosomenkrankheiten der Rinder. *Arch. wiss. prakt. Tierk.*, XXXI. 317-329. [Transmission by *Ixodes*.]
- Sergeant, E.** (1909), *Détermination des insectes piqueurs et suceurs de sang*. 298 pp., 229 Figs. Paris : Octave Doin et Fils. [Ticks : pp. 3-21, Figs. 1-24, condensed account taken mostly from L. G. Neumann ; nothing original.]
- Simond, A., and Noc** (1909), Sur l'existence de la spirillose des poules à la Martinique. *Compt. rend. Soc. de Biol.*, 714-716. [Spirochaetosis occurs especially in May to Dec. in fowls, associated with *Argas persicus*.]
- Simpson, J. J.** (1911), Entomological Research in British West Africa, I. Gambia. *Bull. Entomol. Res.*, II. (1911-12), 187-240, 14 Text-Figs., and map. [Ticks : List of species encountered, p. 218 ; native names, p. 219 ; instructions for collecting ticks, pp. 232-234.]
- (1912a), Entomological Research in British West Africa. II. Northern Nigeria. *Bull. Entomol. Res.*, II. (1911-12), 301-356, Pls. VII-XVI and map. [Ticks : List of species encountered, pp. 322, 328, 346 ; piroplasmosis (canine), p. 354.]

Bibliography of the Ixodoidea. II SIM—SUW

- Simpson, J. J.** (1912b), Entomological Research in British West Africa. III. Southern Nigeria. *Bull. Entomol. Res.*, III. 137-194, Pls. II-V. [Ticks: Occasional mention of occurrence, and list of species in *Records of Blood-sucking Insects and other Arthropoda from Southern Nigeria*, p. 185.]
- (XI. 1913), Entomological Researches in British West Africa. IV. Sierra Leone. (With a map showing the distribution of Glossina and Sleeping Sickness, and 10 photographs by the author.) *Bull. Entomol. Res.*, IV. Part III, 151-190, Pls. XVIII-XXII, and map. [Pp. 184, 185: List of species of ticks found, with native names.]
- (IV. 1914), Entomological Research in British West Africa. V. Gold Coast. *Bull. Entomol. Res.*, v. pp. 1-36, Pls. I-IV. [P. 30: lists ticks found on travels on behalf of Imperial Bureau of Entomol.]
- Sinclair, J. M.** (22. VIII. 1910), *Report of Committee of Enquiry on African Coast Fever, Southern Rhodesia*. Rhodesia: Govt. Printing Office, Salisbury.
- Skinner, B.** (24. VIII. 1907), Preliminary note upon ticks infesting rats suffering from plague. *Brit. Med. Journ.*, II. 457. [Species of tick not stated; found on *Mus rattus* at Nowshera, N. W. Provinces of India.]
- Sluiter, C. P. and Swellengrebel, N. H.** (1912), *De diertlijke parasieten van den mensch en van onze huisdieren*, 2 druk. Amsterdam: Scheltema & Holkema. 526 pp., 1 Pl. roy. 8°.
- Smallwood, W. M.** (1913), *A Text-Book of Biology*. 285 pp., 13 Pls. and 243 illustrations. London: Baillière, Tindall and Cox. [Brief mention of ticks. Nothing original.]
- Smith, G. Elliot** (1910), An address on the mechanism of infection in Tick fever and on the hereditary transmission of *Spirochaeta duttoni* in the tick. *Lancet*, CLXXVIII. 11-14.
- Sobernheim** (), Hühnerspirochäte (*Spirochaete gallinarum*). *Handb. d. pathog. Mikroorgan.*, v. Kolle u. Wassermann. Erg.-Bd. I. 590-594.
- Stewart, J. L.** (XII. 1908), Clinical phases of Rocky Mountain Spotted Fever. *Med. Sentinel*, Portland, Oreg., U. S. A.
- Stiles, C. W.** (1911), Tick (Ixodoidea) Generic Names to be included in the "Official List of Zoological Names." *Nature*, London, LXXXVIII. 42; also in *Science*, N.S. XXXIV. 812 (1912).
- Stockman, S.** (1908), Red-water in England and its Carriers. *Journ. Comp. Pathol. and Therap.*, XXI. 225-232; also *Veterinary Journ.*, LXIV. 538-545.
- (31. III. 1909), Redwater. (In) *Ann. Rep. Proceedings under "The Diseases of Animals Act" for 1908*, pp. 12-17.
- (1911), "Ticks: The habits of British Ticks found on Sheep and Cattle" in *Board of Agriculture and Fisheries, Annual Reports of Proceedings under the Diseases of Animals Acts, etc., for the year 1910* (London: Darling & Son), pp. 23-32. Also in *Journ. Comp. Pathol. and Therapeutics*, XXIV. 229-237. [Raising notes, etc., relating to *Haemaphysalis cinnabarina* var. *punctata*, brief mention of *Ixodes ricinus*.]
- Supino, F.** (1897), *Nuovi Ixodes della Birmania*. Padova: Stab. P. Prosperini. Con 12 tavole. [Cited by Gestro, R., 1904, p. 32; also by Canestrini, 1897.]
- Suworow, E. K.** (1908), *Ixodes redurius*, Eine anatomische Skizze. *Trav. Soc. Natural. St. Pétersbourg*, Sect. Zool. et Physiol., XXXVIII. 139-219 in Russian;

Bibliography of the Ixodoidea. II SWE—THE

220-223, bibliography, partly in Russian; 225-239 condensed version in German; Pls. IV-V.

Swellengrebel, N. H., see Sluiter, C. P.

Taschenberg, O. (1889), *Bibliotheca zoologica* (1860-1880), Ticks, II. 1273, 1277 [nothing new; reference supplied by J. C. Huber].

Taylor, F. H. (v. 1913), Report of Entomologist. *Report for the Year 1911 of the Australian Inst. Tropical Med., Townsville*, 22 pp. 3 pls. Rev. in *Rev. Applied Entomol.*, II. ser. B, 11-12.

Temple, I. U. (read 24. VI. 1912), Acute Ascending Paralysis, or Tick Paralysis. *Medical Sentinel*, Portland, Oregon, U. S. A., IX. 1912, 8 pp., reprint.

Theiler, A. (1906), Transmission and inoculability of Spirillosis in Cattle. *Journ. Trop. Veter. Sci.*, Calcutta, I. 421-431. [Abstract from *Ann. Rep. Transvaal Dept. Agric.*]

— (1908), Weitere Versuche, das Ostküstenfieber durch Zecken zu übertragen. *Zeitschr. f. Infektionskrankh. d. Haustiere*, IV. 265-278.

— (1909), Quelques observations concernant la transmission du *Piroplasma bigeminum* par les tiques. *Bull. Soc. Pathol., Exot.*, II. 384. Rev. in *Arch. f. Schiffs- u. Tropen-Hygg.*, XIV. 787.

— (1910) *Anaplasma marginale* (gen. and spec. nova). *Report Gov't Veter. Bacteriologist*, Pretoria, 1908-9, p. 7. Rev. in *Centrabl. f. Bakt.*, 1911, I. (Referate), pp. 10-11. [*Boophilus decoloratus* mentioned as "carrier."]

— (20. VII. 1911), Transmission of Amakebe by means of *Rhipicephalus appendiculatus*, the brown tick. *Proc. Roy. Soc. London*, LXXXIV. ser. B, 112-115. ["Amakebe" a native name for East Coast Fever in Uganda. Gorged nymphs of *R. appendiculatus* were taken from infected animals and sent to Theiler; the adults which issued, infected calves at Pretoria. The brown tick the commonest in Uganda.]

— (1911a), Über Zecken und die von denselben verbreiteten Krankheiten der Haustiere Süd-Afrikas. *Schweizer Archiv f. Tierheilk.*, LIII. 1. (Rev. in *Centrabl. f. Bakt.*, 1912, LI. (Referate), 498.)

— (1911b), Transmission of Amakebe by means of *Rhipicephalus appendiculatus*, the brown tick. *Proc. Royal Soc. Lond.*, s. B, LXXXIV. 112-115; also *Journ. Trop. Med.*, XIV. 275-276.

— (1911c), Some observations concerning the transmission of East Coast Fever by Ticks. *1st Rept. Director Veter. Research*, Pretoria, 208-223.

— (1911d), Diseases, Ticks, and their eradication. *Agric. Journ. Union South Africa*, I. 491-508, 4 Pls.

— (1911-12), The transmission of Gall Sickness by Ticks. *Veterinary Record*, London, XXIV. 630-633.

— (1912a), Uebertragung der Anaplasmosis mittels Zecken. *Zeitschr. f. Infektionskrankh. d. Haustiere*, XII. 105-116.

— (1912b), Weitere Beobachtungen, betreffend die Uebertragung von Küstenfieber vermittelt Zecken. *Zeitschr. f. Infektionskrankh. d. Haustiere*, Berlin, XII. 26-42.

— (1912c), Some observations concerning the Transmission of East Coast Fever by Ticks. *Trans. R. Soc. South Africa*, II. 319-338.

— (1913), Inquiry into Dips and Dipping in Natal. *Agric. Journ. Union of*

Bibliography of the Ixodoidea. II THE—TUT

- S. Africa*, v. 51-67; v. 249-263: rev. in *Rev. Applied Entomol.*, ser. B, pp. 82-85.
- Theiler, A., Gray, C. E., and Power, W. M.** (1914), Diseases transmitted by Ticks; their Classification, Treatment and Eradication [followed by summaries in French and German]. *Xth International Veterinary Congress, London*. Reprint 17 pp. [issued in advance of Congress].
- Theobald, F. V.** (1905), Flies and Ticks as agents in the distribution of disease. *Nursing Times*, London, I. 461, 483.
- (1906), *Report on Economic Zoology for the Year ending April 1, 1906*, pp. 12-13. [Sheep ticks.]
- Thompson, W. and Downing, J. E.** (10. II. 1912), The live-stock industry of Honduras. *U. S. Dep't Agric., 27th Ann. Rep. Bur. Animal Industry for the Year 1910*, pp. 285-295, Pls. XXII-XXV, 1 map. [The authors sent by U. S. Gov't to discover what stock diseases exist in Honduras. They report that *Boophilus annulatus* occurs throughout the country, causing ravages among cattle during dry season; heavy mortality due to piroplasmosis occurs in imported non-immune cattle. Native cattle owners deny that the ticks are infected, because native (immune) cattle are not noticeably affected—this being the same opinion as that expressed in Porto Rico some years ago.]
- Todd, J. L.** (XII. 1912), Tick bite in British Columbia. *Canadian Medical Assoc. Journ.*, II. 1118, repr. 2 pp. [Reports relating to effects of bites of ticks spp. which reached author by correspondence; paralysis and sometimes death followed.]
- see **Dutton, J. E.**
- see **Newstead, R.**
- Tofahr, O.** (1912), Bhtläuse und Zecken im Terrarium. *Blatt. Aquar.-Terrar.-F.d.e.*, XXIII, 418-421.
- Tonnel** (1906a), Note sur l'*Argas reflexus*. *Echo méd. du nord*, Lille, x. 340-342.
- (1906b), *Semaine méd.*, p. 552. [Cit. by Galli-Valerio, IX. '07, p. 191 as attributing the spread of furunculosis (due to *Staphylococcus pyogenes aureus*) in a family to the bites of *A. reflexus*, the tick acting as a carrier.]
- Townsend, C. H. T.** (VI. 1913), The possible and probable etiology and transmission of Verruga fever. *Journ. Econ. Entomol.*, VI, 211-225.
- (IX. 1913), Progress in the study of Verruga Transmission by Bloodsuckers. *Bull. Entomol. Res.*, IV. 125-128, Pls. X-XII. [Occurrence of "*Ixodes lagotis* Gervais" in the adult, nymphal and larval stages on the vizcacha (*Lagidium peruvianum* Meyer) in Peru. *Ixodes* spp. found on native rats in the higher Andean region and also on birds. Argasid larvae found on goat-sucker and ground owl, also *Ornithodoros* sp. in mud houses in Chachapoyas region, Peru. *O. talaje* occurs on sea-birds on guano islands and along Peruvian coast. Specimens of these ticks have been received by Professor Nuttall. Experiments with Verruga transmission negative.]
- Tullgren, A.** (1901), On *Ixodes arenicola* Eichwald. *Entom. Tidskr. Arg.* XXII, 102. [= *Hyalomma aegyptium*.]
- Tuttle, T. D.** (XII. 1908), Some indications for State control of Rocky Mountain Tick fever. *Med. Sentinel*, Portland, Oreg., U.S.A.
- (1910), Rocky Mountain Spotted (Tick) Fever. *5th Bien. Rept., State Board Health, Montana*, 9-12.

Bibliography of the Ixodoidea. II URI—WIL

- Uribe Botero, A.** (1906-7), El *Argas reflexus*, parásito del hombre. *Rev. méd. de Bogotá*, 200.
- Van den Branden, F.**, see **Rodhain, J.**
- Verney, F. A.** (1907), The influence of frost on tick life. *Natal Agric. Journ. and Min. Rec.*, x. 1550-1552.
- Vinogradoff, A. A.**, see **Yakimoff, W. L.**
- Vladimiroff** (), "Hühnerspirochäte" in *Kolle and Wassermann Handb.*, etc., iv. 2.
- Voorhees, J. F.**, see **Cotton, E. C.**
- Warburton, C.** (12. III. 1912), Notes on the genus *Rhipicephalus*, with the description of new species, and the consideration of some species hitherto described. *Parasitology*, v. 1-20, 12 Figs., reprint.
- (XII. 1912), The Acarina of the Seychelles. *Trans. Linnean Soc. London* (2nd Ser. Zoology), xv. 349-360, Pls. XVII-XIX. [Records *Rhipicephalus sanguineus* from dog, at Mahé, p. 360. With a supplementary note by J. Stanley Gardiner.]
- (1913), On four new species and two new varieties of the Ixodid Genus *Haemaphysalis*. *Parasitology*, vi. 121-130, 8 Figs.
- see **Nuttall, G. H. F.**
- Ward, H. B.** (IV. 1913), Article "Arachnida" in *Reference Handbook of Medical Sciences*, New York: Wm. Wood & Co., vol. I. 502-516, 26 Figs. [Ticks: pp. 510-515, Figs. 274-286 of which Fig. 286 of *Amblyomma americanum* is original but shows no details (♀ gorged).]
- Watkins-Pitchford, H.** (1911a), *An illustrated pamphlet on Tick-destruction and the eradication of East Coast Fever and other S. African diseases by dipping*. Natal, Maritzburg, and Durban: P. Davis and Sons. 125 pp.
- (1911b), Dipping and Tick-destroying Agents. *Agric. Journ. Union South Africa*, II. 33-79, 2 Pls., 4 Figs.
- Weber, E.** (1863), *Argas reflexus*. 29. *Jahresber. d. Mannheimer Vereins f. Naturkunde*, Mannheim. Pp. 28 et seq. [Cited by Metz, 1911, p. 2, as having observed *A. reflexus* in Mannheim. Allowed tick to bite his forearm: no effect produced.]
- Weiss, A.** (1912), Addition au catalogue des arthropodes piqueurs de Djerba. *Arch. de l'Institut Pasteur de Tunis*, 1902, No. iv. 227. [Occurrence of *Ornithodoros savignyi* again recorded (see also *Ibid.* 1911, No. iv. 268-274) in fields about Djerba, Tunisia, at base of olive trees near dwellings where cattle occasionally stay. Bites man readily. Also found about Ben-Gardane and on frontier of Tripoli in VII. 1912. It is called "Tobbiah" by indigenes of Tunisia who know it well.]
- Wenyon, C. M.** (X. 1911), Oriental Sore in Bagdad, together with observations on a gregarine in *Stegomyia fasciata*, the Haemogregarine of dogs and the flagellates of houseflies. *Parasitology*, iv. 273-344, Pls. XII-XVI, 36 Text-figs. [Development of *Haemogregarina canis* in *Rhipicephalus sanguineus*.]
- Wienholt, A.** (15 VI. 1909), The Tick trouble in Queensland. *The Pastoralist's Review*..., 5-7.
- Wilder, R. M.**, see **Ricketts, H. T.**

Bibliography of the Ixodoidea. II WOL ZIE

- Wolbach, S. B.** (1914), The distribution and morphology of *Spirochaeta duttoni* and *Spirochaeta kochi* in experimentally infected ticks (*Ornithodoros moubata*). *Journ. Med. Research*, xxx. 37-48, 3 Pls.
- Wolffhügel, K.** (1911), *Los Zooparásitos de los animales domésticos en la República Argentina*. [Ticks referred to on pp. 81-83, 85. Reference supplied by J. C. Huber. *Amblyomma varium*, *A. maculatum*, *Margaropus micropus*, *Rhipicephalus annulatus* var. *argentinus*.]
- Wood, H. P.** (1911), Notes on the life-history of the tick parasite *Hantarella hookeri* Howard. *Journ. Econ. Entomol.*, iv. 425-431, Pl. XIX, Figs. 1-5. [Hymenopterous parasite occurring on *Rhipicephalus sanguineus* and *Dermacentor parumapertus marginatus*. The author figures the insect and parasitized ticks.]
- (22. XI. 1913), Experiments in the use of sheep in the eradication of the Rocky Mountain Spotted Fever Tick. *U.S. Dept. Agric., Bull.* No. 45, 11 pp. Rev. in *Rev. Applied Entomol.*, II. ser. B, 2-3.
- Wood, H. P.**, see **Bishopp, F. C.**; see **Hooker, W. A.**
- Yakimoff, L. and Kohl-Yakimoff, N.** (1911), Étude des Ixodidés de Russie. *Arch. de Parasitol.*, Paris, xiv. 416-425, Figs. 1-4. [Enumerate known species and describe *Rhipicephalus rossicus* n. sp., ♂ and ♀ being figured.]
- (III. 1912), Sur la question des Ixodidés de Russie. *Bull. Soc. Méd. Exotique*, Paris, v. 194-195. [Reply to Nuttall, II. 1912, p. 120.]
- Yakimoff, W. L., Vinogradoff, A. A., and Kohl-Yakimoff** (I. 1912), *Argas persicus persicus* Fischer-Waldheim en Russie d'Europe. *Bull. Soc. Méd. Exotique*, Paris, v. 39-41. [Lists species of ticks found in Russia. Errors in this paper are pointed out by Nuttall, II. 1912, p. 120.]
- Yorke, W.**, see **Kinghorn, A.**
- Zabala, J.**, see **Lignières, J.**
- Ziemann, H.** (1905), Beitrag zur Verbreitung der blutsaugenden Tiere in West Afrika. *Arch. f. Schiffs- u. Tropen-Hyg.*, ix. 114-119.
- (I. 1912), Zur Verbreitung der blutsaugenden Tiere in Kamerun. *Arch. f. Schiffs- u. Tropen-Hyg.*, xvi. 53-58, reprint. [Lists species of ticks found, and determined by Neumann.]
- (III. 1912), Zeckenlarven an Menschen in den Tropen. *Archiv f. Schiffs- u. Tropen-Hygiene*, xvi. 196. [Man often attacked by tick larvae in the tropics. Two cases briefly described where 30 and 200 larvae respectively attacked persons who had been in the bush. The larvae produced intolerable itching, the condition leading in one case to the wrong diagnosis of *Phthirus pubis* infestation; the tick larvae were not, however, confined to hairy parts of skin. Baths useless, rubbing skin all over with petroleum, or repeatedly dabbing the ticks with petroleum, promptly cured the condition by removing the ticks, of which the species was not determined.]

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