

Ticks in the South African Zoological Survey Collection. Part V.—Three African Haemaphysalids Parasitic on Domestic Stock.

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“*HAEMAPHYSALIS ACICULIFER*”, WARBURTON (1913).

Male. (Fig. 1.)

1.8 mm. \times 1.1 mm. to 1.9 \times 1.3 mm. *Consutum* long oval widest in the middle, narrowest anteriorly. Anterior prominence of coxa I visible dorsally and accentuating the anterior attenuation; lightly chitinized and lightly pigmented, though usually somewhat darker in colour than *H. leachi*; emargination narrow and fairly deep (Warburton draws it as rather shallow). Cervical groove with an anterior deeper semilunar pit, with concavity inwards, the posterior shallower portion curved with concavity outwards.

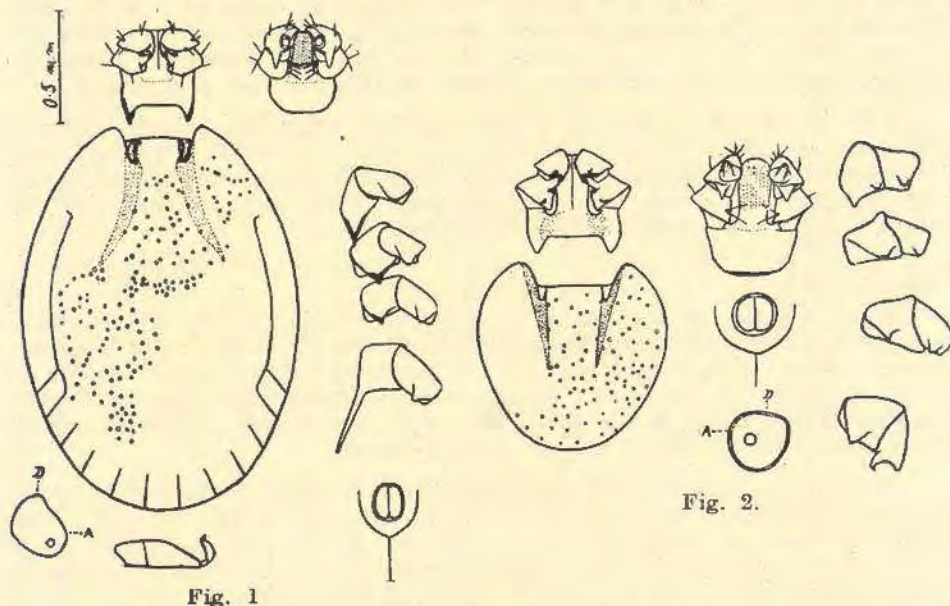


Fig. 1.—*Haemaphysalis aciculifer* ♂, after Warburton (1913). Fig. 4 slightly modified.

Fig. 2.—*Haemaphysalis* ♀, after Warburton (1913). Fig. 5.

Lateral groove present, its commencement varies from the level of coxa II to the interspace between coxae III and IV, including the last festoon. Festoons elongate, pronounced. Punctations unevenly fine, scattered over entire surface including the festoons and the marginal areas. Fovea fairly well apart at the level of the interspace between coxae III and IV.

Rostrum.—Short. *Basis capituli*: almost rectangular, slightly wider anteriorly, the sides continued as a straight line onto the very strong cornua which slope towards each other. *Palps*: Article 2 slightly broader than long, the internal margin longer than the outer; Article 2 salient laterally usually overlapping anterior prominence of coxa I—the posterior mesial angle usually rounded, though it often appears sharply pointed due to the presence of a long hair on the angle. The anterior mesial angle shows a slight thickening or protuberance where article 3 is hinged to it. Article 3 is broader than long, overlapping article 2 all round, a blunt triangle in shape (Warburton's drawing shows it rather too flat and blunt). Article 2 no ventral spur, article 3 a long, strong, sharp ventral spur. Article 4 attached fairly far back on article 3. Article 1 visible ventrally merely as the hinge on which the palp pivots. *Hypostome*: short, narrow, 4/4, numerous small teeth to the row.

Legs.—Medium with very strong trochantal spur on leg 1. *Coxae*: longer than broad, with coxa IV the most elongate; long strong hairs present. Coxa I with a strong, sharp internal spur and a small faint external spur. Coxae II and III with a single short blunt median spur. (Warburton indicates the presence of a slight protuberance on the middle of the posterior border). Coxa IV with a long needle-like spur, longer than the coxa itself, and reaching to the level of the anal groove or slightly beyond. Ventral trochantal spurs slight, progressively diminishing and may be completely absent on leg 4. *Tarsus* I plump, with the appearance of a distal false articulation; ending abruptly from a slight dorsal hump; sensory organ prominent; strong hairs along ventral surface, but few dorsally. *Tarsus* IV ending bluntly, false articulation present though not very pronounced.

Ventral surface.—Genital orifice opposite coxae II. Genital grooves diverging as a curved line with concavity inwards from the level of coxae IV and meeting the posterior margin at festoon 3. Anal groove ogival; ano-marginal groove extending to the margin. Short hairs present. Stigma rather broad, with a very slight blunt dorsal process.

Female. (Fig. 2.)

6 mm. × 4 mm. to 6.5 mm. × 4.5 mm.; unfed 2½ mm. × 1½ mm. *Scutum*: cordiform, as long as or slightly longer than broad; posterior margin convex. Emargination: wide and deep. Cervical grooves: well marked, visible for about two-thirds of the scutal length. Lateral grooves: absent. Punctations small and evenly scattered. *Alloscutum*: numerous punctations evenly distributed, though usually but few hairs present.

Rostrum.—*Basis capituli* much broader than long; rectangular; cornua strong though not as sharp as in the male; sides practically parallel. Ventrally the posterior border has its corners rounded off and not square, as in Warburton's original drawing. *Areae porosae*: oval, far apart touching the dorsal ridges anterior to the cornua. *Palps* rather more angular than in the male, so that the external contour is more broken, giving a pagoda effect. Protuberance at anterior mesial angle of Article 2 more pronounced than in the male. *Hypostome*: 4/4; small teeth.

Legs.—Medium, with very strong dorsal trochantal spur on leg 1. Coxae rather squarish; spurs not as sharp as in the male. *Tarsi* and ventral trochanters as in the male.

Ventral surface.—Genital orifice immediately behind coxa II. Stigma, sub-circular. Anal grooves slightly ogival.

Nymph. (Figs. 4-6.)

Scutum, circular, widest just anterior to half the length; emargination; wide and shallow; appears deeper than it is, as coxae I have a pronounced anterior prominence. Cervical groove; deep at first then becoming shallow very rapidly; as in the adults but slightly curved anteriorly and then straightening almost immediately. No lateral groove. Scutal surface reticulate. *Alloscutum*: surface finely striated, with occasional deep punctations, and strong hairs. Marginal groove pronounced, includes the last festoon. Festoons pronounced, longer than broad in the unfed specimens.

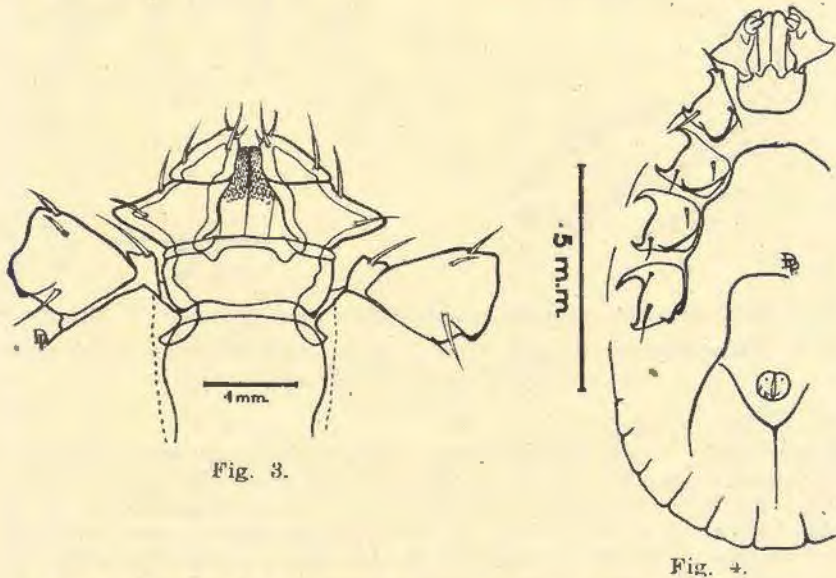


Fig. 3.—*Haemaphysalis aciculifer* nymph, dorsal view. D. Pringle del.

Fig. 4.—*Haemaphysalis aciculifer* nymph, ventral view. D. Pringle del.

Rostrum.—Wider than long. *Basis capituli* rectangular, much broader than long, lateral margins but slightly curved and continuous with the broad highly chitinized cornua; posterior margin straight to slightly convex. *Palps* give the impression of leaning towards one another; project laterally well behind the scapulae, extending even beyond the anterior prominence of coxa I. Article 2 very broad at base, posterior margin forming a sharp angle with the lateral margin, i.e., more salient than in either of the adults; mesial margin sinuous. Article 3 triangular, broader than long, external margin longer than the internal. Ventral spur on article 3 sharp and prominent. *Hypostome* 2/2, with six to seven large teeth to the row.

Legs.—Long, with strong hairs along the ventral surface. *Coxae*: well developed, becoming squarer from Coxa II to Coxa IV. Coxa I with broad, strong internal spur. Coxae II–IV each with a flat spur, that on Coxa IV tending to be sharper than on II and III. *Tarsi*: Tarsus I sensory organ prominent; tapering gradually from the sensory organ with but a slight hump distal to the organ. Tarsus IV tapering gradually; with a false articulation.

Ventral surface.—Anal groove sinuous, the two sides meeting in a fairly sharp angle; ano-marginal groove long, reaching to the festoons. Stigma sub-circular.

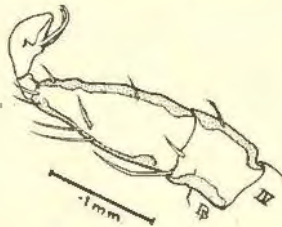
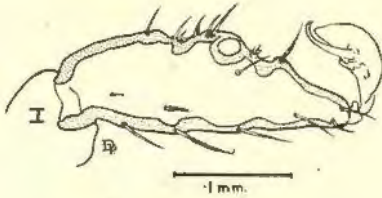


Fig. 5.

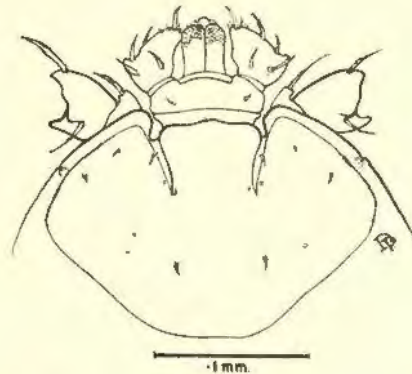


Fig. 6.

Fig. 5.—*Haemaphysalis aciculifer* nymph, Tarsus i and Tarsus iv. D. Pringle del.

Fig. 6.—*Haemaphysalis aciculifer* larva, dorsal view. Rostrum tilted slightly downwards. D. Pringle del.

Larva. (Figs. 7–10.)

Scutum very much broader than long, widest half way; lateral angle broadly rounded; postero lateral margin sinuous; posterior angle very broadly rounded. Surface reticulate. *Emargination*: wide and shallow, as in the nymphae, it appears deep due to the anterior prominence of Coxae I. Cervical groove, as in the nymph and in the adults, inner edge curved, outer edge straight. No lateral groove. Punctations and hairs as in the figure. *Scutum*: Marginal groove pronounced; festoons well marked in the unfed specimens.

Rostrum.—*Basis capituli* quadrangular, about $2\frac{1}{4}$ times as broad as long, lateral margins slightly convex, parallel; posterior margin straight to slightly concave; no cornua. *Palps*: short; broader than long. Articles 2 and 3 fused. Base of palp salient, extending beyond anterior prominence of Coxa I, its lateral angle somewhat tip-tilted. Ventral spur on article 3 prominent, rather blunter than in the nymph and in the adults. *Hypostome* $2\frac{1}{2}$, five to six teeth to the row; very short corona.

Legs.—Long, long hairs edging the ventral surface. Coxa I, spur nearly as long as broad. Coxae II and III—spur flat and broad. Tarsus I, small hump after the sensory organ, then tapering gradually. Tarsus IV tapering gradually; false articulation.

Type described from 1 ♂ and 1 ♀ collected in 1911 by S. A. Neave from a *Cobus thomasi* on the N.E. shore of Lake Edward, Uganda; and deposited in the Imperial Bureau of Entomology, London.

The nymph and larva described here for the first time are described from material reared by Dr. E. Aneurin Lewis at Kabete, and kindly put at my disposal.

Occurrence.—The Onderstepoort collection contains material off *Tragelaphus sylvaticus*, the Bushbuck from the Umfolosi Game Reserve in Zululand; off *Redunca arundium*, the Reedbuck from Northern Zululand; off *Mongos mungo*, the Mongoose, from the Umfolosi Game Reserve; off *Leptailurus serval*, the serval cat from Pietermaritzburg, Natal; and off *Tragelaphus scriptus* at Kigezi, Uganda; and off domestic stock at Kabete, Uganda.

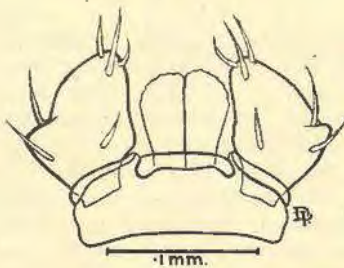


Fig. 7.

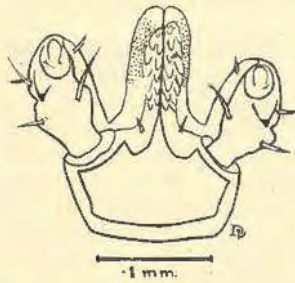


Fig. 8.

Fig. 7.—*Haemaphysalis aciculifer* larva. Rostrum. D. Pringle del.

Fig. 8.—*Haemaphysalis aciculifer* larva. Rostrum, ventral view. D. Pringle del.



Fig. 9.

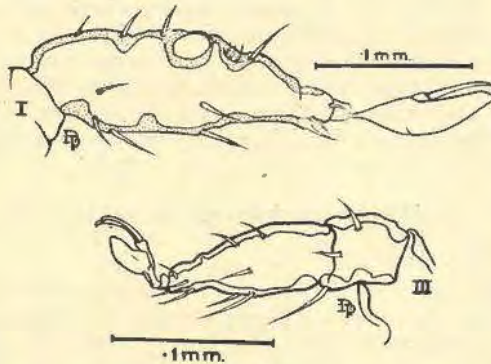


Fig. 10

Fig. 9.—*Haemaphysalis aciculifer* larva. Coxae I-III. D. Pringle del.

Fig. 10.—*Haemaphysalis aciculifer* larva. Tarsus I and III. D. Pringle del.

Its distribution, on domestic stock in the Union, as far as present records go, is confined to more or less localised areas in the Northern- and in the Eastern-Transvaal. It may occur on farms fairly closely situated to one another or in some instances on farms well isolated from the next nearest record. Thus we have records from the farms All Days, Potgietersrust and

Pietersdal in the Northern Zoutpansberg; from the farms Fleurfontein, Pisangshoek and Waterval in the Zoutpansberg Mountains; from the farms the Downs, Dieplaagte and Koekwe in the Tzaneen-Haenertsburg regions of Letaba; in the Eastern Transvaal the farms show a similar clustering in the Barberton and Nelspruit areas, with one or two records well isolated. Upon plotting the records, the distribution of the tick seems more than haphazard; thus, in the Northern Transvaal, it occurs in areas with a rainfall as low as 15 inches per year to areas with a rainfall of 35 to 40 inches; in areas having a "subtropical evergreen and deciduous tree and thorn forest", as well as in the more open parklands of the Limpopo Highlands; in the Eastern Transvaal it ranges in altitude from the Lowveld at Sabi Bridge to 4,500 feet at Geelhoutboom in the Pilgrimsrest area, with rainfalls varying from 30 inches to 50 inches; it is present in the subtropical parkland areas as also in the tall grass areas, with a few occurrences in the short grassland of the Highveld; these latter records, however, are all situate on the edge of the Highveld.

This discontinuous distribution ranging through such a wide variety of vegetation, altitude and rainfall and so divorced from other areas with identical conditions, would be difficult to explain if one confined oneself to geographical and climatological factors only. However, if one remembers that *H. aciculifer* is an East African tick, and that stock was introduced from East Africa and from Madagascar after the Boer War and the Rinderpest outbreak which preceded it, and sent to various parts of the country from dispersal centres, then the distribution picture is not quite as confused as it appears at first. The discontinuity is thus seen to be due, partly to the fact that not all farms in any one area received introduced cattle and partly to the fact that the tick when introduced did not always find itself under suitable conditions.

East African and Madagascar cattle were introduced to many and diverse parts of South Africa, *H. aciculifer*, however, seems to have been able to maintain itself only in areas, where there are no severe winters and where there is no frost or but an occasional light frost. There may be other factors which play a limiting rôle to its distribution and which may account for its absence from other regions, e.g., Southern Rhodesia, where one might expect to find it and where winters are never severe. As yet I have seen no discussion on the factors limiting its distribution in the more tropical parts of Africa.

"HAEMAPHYSALIS PARMATA. NEUMANN, 1905.

Male. (Fig. 11.)

A small tick; 1.3 mm. to 1.8 mm. x .75 mm. to 1.1 mm., yellowish to light brown in colour. *Conscutum*: an elongate oval widest at the middle. Emargination broad and shallow. Cervical groove very short. Lateral grooves very short, including the last festoon, in some instances apparently absent. Punctations numerous, medium-sized, deep, evenly dispersed, reaching on to the festoons, less numerous along the lateral margin. Fovea not distinguishable.

Rostrum.—Short, broad. *Basis capituli* broadly rectangular, sides parallel, strong cornua at the postero-lateral corners. *Palps*: almost as broad as long. Article 2 wider than article 3 broadest distally; there is a break in the contour between articles 2 and 3. Article 3 rounded distally with strong retrograde dorsal spine. Ventral retrograde spur on articles 2 and 3, that on 3 being the most prominent. *Hypostome* short and broad 4/4.

Legs stout. *Coxae* quadrangular. Coxa I well-developed internal spur, feeble external spur. Coxae II–IV short, rounded, central spur. Small trochantal spurs decreasing in size from I to IV. *Tarsus* I very stout, sloping rapidly from a small hump distal to the sensory organ. *Tarsus* IV more slender, tapering more evenly, a proximal false articulation.

Ventral surface sparse hairs. Genital orifice opposite Coxae II. Genital groove a straight line till the level of the stigma. Anal groove ogival, with long ano-marginal groove. Stigma suboval with short dorsal process.

Female. (Fig. 12.)

Scutum sub-circular 0.64 mm. to 0.7 mm. × 0.75 mm. to 0.9 mm., light brown to yellowish. Emargination deep and broad, deeper than given in Nuttall and Warburton's drawing. Cervical grooves broad and shallow, reaching half way. Punctations medium-sized, not as deep as in the male, evenly dispersed.

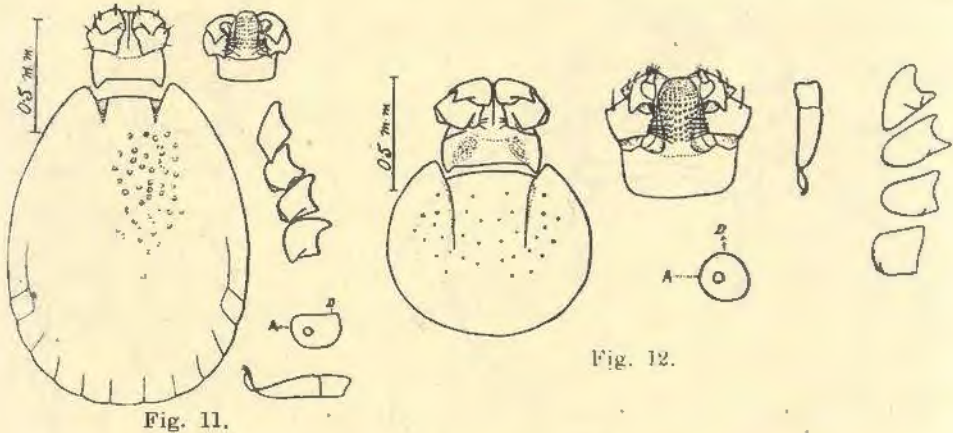


Fig. 11.—*Haemaphysalis parvata* ♂ after Nuttall and Warburton (1915). Fig. 350.

Fig. 12.—*Haemaphysalis parvata* ♀ after Nuttall and Warburton (1915). Fig. 351.

Rostrum.—*Basis capituli* more than three times as broad as long, sides parallel; cornua moderate, sharp; porose areas far apart and approaching the lateral margins. *Palps* slightly longer than broad. Articles 2 and 3 about the same size, slightly broader than long. Article 2 widest at base, projecting but does not quite reach anterior projection of Coxa I. Article 3, long, sharp retrograde spur. A ventral retrograde spur on articles 2 and 3; that on article 2 blunt. *Hypostome* as in the male.

Legs.—*Coxae* as in the male; the spurs tending to be broad salient ridges rather than points as in the male. *Tarsi* and trochantal spurs as in the male.

Ventral surface.—Few sparse hairs. Genital orifice opposite interspace 2. Anal groove large, sinuous and ogival, with long ano-marginal groove as in the male. Stigma sub-circular.

Nymph. (Figs. 13-15.)

Scutum light brown to yellowish, sub-circular, slightly wider than long. Emargination broad to deep. Cervical groove shallow, extending to half the scutal length; surface reticulate; sparse small punctations with hairs scattered fairly evenly over the scutum, these punctations can only be picked up under the higher magnifications.

Rostrum short and broad: *Basis capituli* rectangular, about three times as broad as long (tilted slightly away from objective in the drawing, making the rostrum shorter than it really is); posterior margin a straight line with thickened chitin forming a very brief cornua; side slightly sinuous (Nuttall and Warburton give it as a straight line). *Palps.* Article 2 showing an internal and an external rounded bulge; broader than long, reaching to the anterior projection of coxa I but not overlapping it; article 3 also decidedly broader than long, nearly always as broad as article 2. The division between articles 2 and 3 not always visible. Ventrally article 3 carries a strong, sharp retrograde spur.

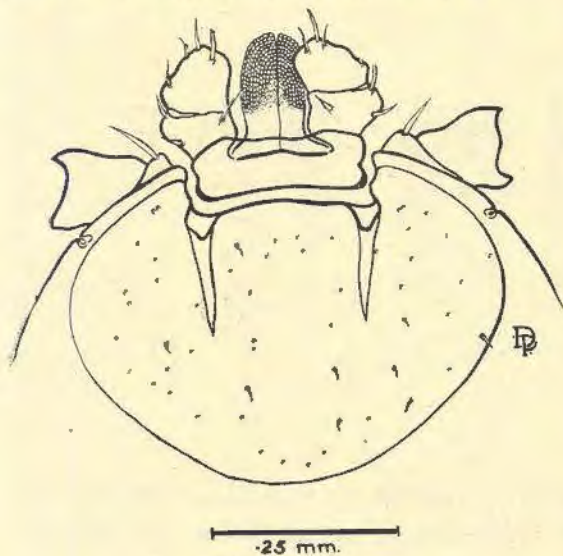


Fig. 13.

Fig. 13.—*Haemaphysalis parvata* nymph, dorsal view. Rostrum tilted slightly downwards. D. Pringle del.

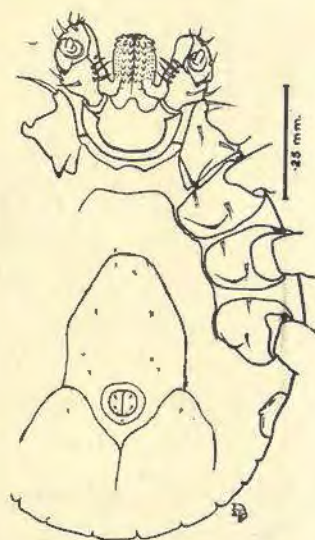


Fig. 14.

Fig. 14.—*Haemaphysalis parvata* nymph, ventral view. D. Pringle del.

Legs.—Strong, decreasing in size from I to IV. Coxa I visible dorsally; single sharp internal spur. Coxa II-IV single median rounded spur, broader than long. Trochantal spurs present, weakest on leg IV. *Tarsus* I stout, tapering gradually from the sensory organ, the slope interrupted by a slight hump immediately distal to the sensory organ. *Tarsus* IV not so stout tapering more gradually; false articulation present.

Ventral surface.—Short sparse scattered hairs; anal groove sinuous, the two sides meeting in a fairly sharp angle; anomarginal groove long, reaching to the festoons. Stigma sub-circular.

Larva. (Figs. 16-19.)

Scutum very light coloured; broader than long; posterior margin slightly sinuous; surface reticulate. Emargination wide and deep. Cervical grooves shallow reaching almost to the posterior margin. Punctations only seen under the higher magnifications, few and arranged as in figure.

Rostrum short and squat: *Basis capituli* almost twice as broad as long; rectangular, with the cornua but slightly strengthened. *Palps* very short and broad. Articles 2 and 3 fused; widest at distal end of article 2, when there is a sudden narrowing along the external margin. Ventrally article 3 carries a strong, sharp retrograde spur. Hypostome 2/2, of 6 to 7 strong teeth.

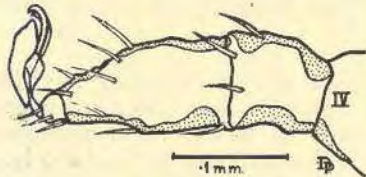
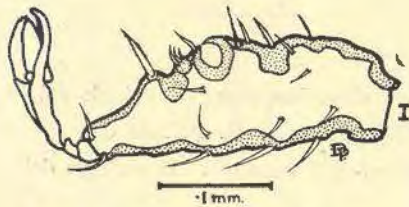


Fig. 15.

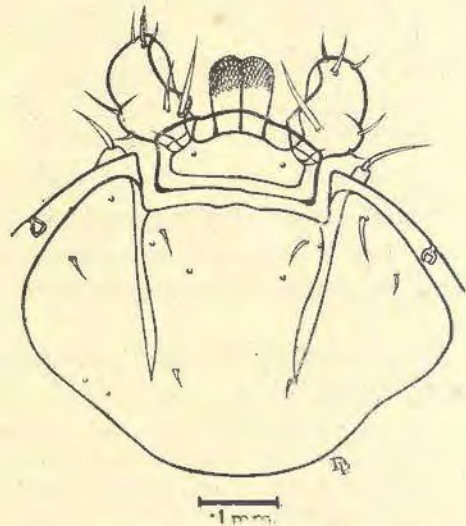


Fig. 16.

Fig. 15.—*Haemaphysalis parvata* nymph. Tarsus I and Tarsus IV. D. Pringle del.

Fig. 16.—*Haemaphysalis parvata* larva, dorsal view. Palps tilted slightly downwards. D. Pringle del.

Legs.—Long and strong, decreasing in size from 1 to 4. *Coxa* 1 long, sharp internal spur. *Coxae* II and III, broad rounded spur, that on *Coxa* III not always clearly visible. Tarsus I as in nymph. Tarsus II much more slender and shorter than I, tapering gradually. *Stigma*, small sub-circular. *Ventral surface* as in nymph.

Type described from a large number of males and of females collected by Ziemann off cattle, sheep, goats and pigs in the Cameroons; and deposited at Toulouse.

The drawings and descriptions of the nymph and of the larva are from the Kigezi material off Bushbuck.

Host cattle, Bushbuck, Hartebeest; *Bos taurus*, goat, sheep, pig; *Potamochoerus porcus*. The Onderstepoort collection contains material off Bushbuck at Kigezi, Uganda, kindly donated by G. H. E. Hopkins.

Geographical distribution.

Essentially a tropical African species being recorded from Uganda, Kenya; Congo Free State, Gold Coast; Sierra Leone and Cameroons. Not recorded from South Africa thus far.

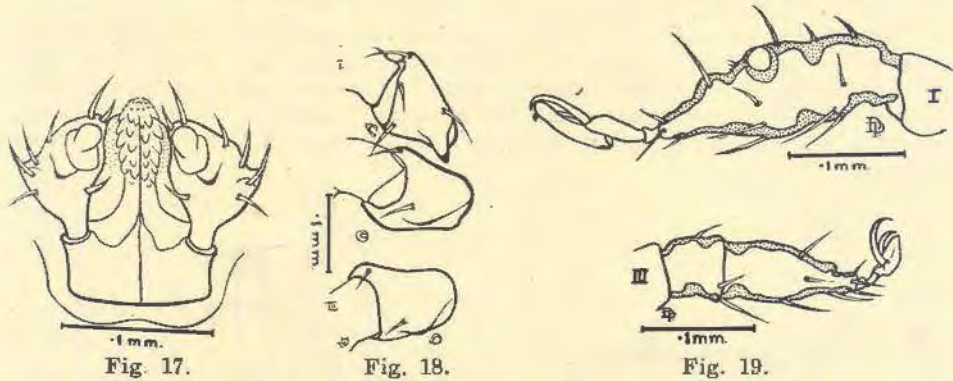


Fig. 17.—*Haemaphysalis parvata* larva, ventral view. Rostrum. D. Pringle del.

Fig. 18.—*Haemaphysalis parvata* larva. Coxae I-III. D. Pringle del.

Fig. 19.—*Haemaphysalis parvata* larva. Tarsus I and Tarsus III. D. Pringle del

“*HAEMAPHYSALIS SILACEA*”, ROBINSON, 1911, THE FISH RIVER BUSH TICK.

Male. (Figs. 20-22.)

2 mm.—2.25 mm. × 1.5 mm.—1.7 mm.; *Conscutum* oval, tapering slightly anteriorly, shiny, reddish brown to yellowish brown. Emargination deep; Cervical grooves short, converging; Lateral grooves short, inconspicuous; variable, starting some distance behind the eye and usually including the last festoon. Fovea not seen. Festoons well marked off by deeply pigmented dividing lines. Punctations medium to fine, close together, evenly distributed over entire scutum on to festoons and lateral areas. Posteriorly shallow circular depressions may be present, not shown in figure; one short central immediately opposite the median festoon, one opposite festoon 4, and a longer one opposite the last two festoons; these depressions have their longer axis parallel to the longitudinal axis of the body. The remainder of the space, usually occupied by the posterior median groove in other genera, may be smooth and devoid of punctations.

Rostrum short; *Basis capituli* rectangular, about three times as broad as long, sides converging posteriorly, cornua present. *Palps* slightly longer than broad. Article 3 broader than article 2 and overlapping it. Article 2 not salient laterally, about as broad as long, posterior margin strengthened but not forming a definite spur. Ventrally the posterior margin is definitely drawn out onto a spur. Article 3 also with a ventral spur. *Hypostome* short, 4/4, with nine to ten teeth to the row, with corona.

Legs average. *Coxae* somewhat square, with a short triangular spur, median to internal in position. Trochantal spurs present, of about equal length. *Tarsus* I stout, with prominent sensory organ, tapering fairly rapidly after a small hump distal to the sensory organ. *Tarsus* IV smaller, more slender, tapering more gradually, proximal false articulation.

Ventral surface, punctations and hairs fairly numerous. Genital opening opposite coxa II. Genital groove with a bulge opposite coxa IV, diverging posteriorly. Anal groove sinuous, meeting in a sharp angle; Anomarginal groove long, reaching to festoon. Stigma sub-circular.

Female. (Figs. 23-27.)

Up to 11 mm. × 8 mm. when engorged, light yellow when unfed. *Scutum* subcircular, slightly broader than long, shiny. Emargination wide and deep. Cervical groove broad and shallow, and reaching about $\frac{2}{3}$ length of scutum, deeper and narrower anteriorly. Punctations fine to medium, fairly close together and evenly distributed. *Alloscutum* heavily punctate, with long median groove; small circular posterior-accessory groove, fairly long posterior paramedian; three short oval lateral grooves, and an anterior paramedian, all running parallel to the longitudinal axis of the body (of these grooves only the posterior five are seen in the male). Note that these grooves are incorrectly drawn in Robinson's figure. Marginal groove in the unfed specimens commencing at about the level of the posterior margin of the scutum, or behind this level, and enclosing the last or the last two festoons.

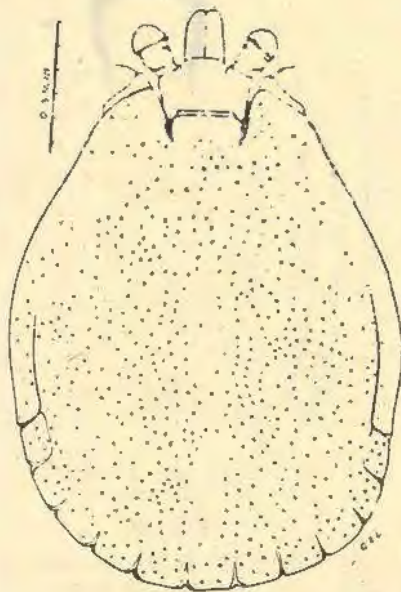


Fig. 20.

Fig. 20.—*Haemaphysalis silacea* ♂, dorsal view. G. E. Laurence del.

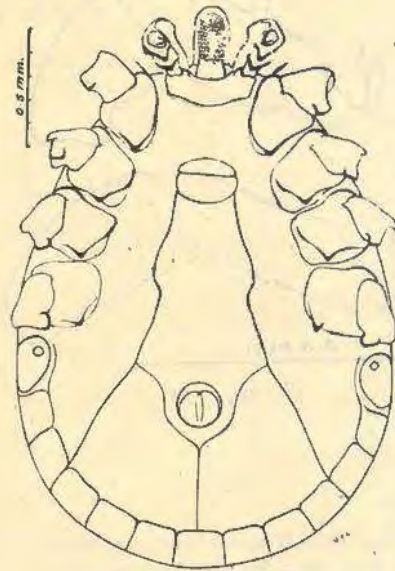


Fig. 21.

Fig. 21.—*Haemaphysalis silacea* ♂, ventral view. G. E. Laurence del.

Rostrum short, broader than long. *Basis capituli* rectangular, about three times as broad as long; cornua short; porose areas well separated, edged externally by a slight dorsal ridge. *Palps*: Article 2 as broad as long, inner margin the longest; posterior margin salient; widest posteriorly; overlapping anterior protrusion of coxa I. Article 3 nearly as broad as article 2, broader than long; posterior margin overlapping article 2; Ventrally article 3 has a retrograde spur. *Hypostome* as in the male.

Legs as in the male; with coxal spurs, however, slightly blunter.
Ventral surface genital orifice opposite coxa II.

Nymph. (Figs. 28-30.)

Yellowish brown. *Scutum* broader than long, posterolateral margin sinuous, posterior margin broadly rounded. Emargination deep, shoulder angle acute. Cervical groove short and shallow. Surface reticulate, with few large punctations carrying short hairs, fairly evenly scattered over the entire scutum.

Rostrum slightly broader than long. *Basis capituli* three times as broad as long, rectangular with corners well rounded. *Palps.* Article 2 about as broad as long, with bulge about half way forward. Article 3 nearly as broad as article 2, broader than long; with a long ventral retrograde spur. *Hypostome* short and broad; $2/2$; seven teeth to a row; a small corona.

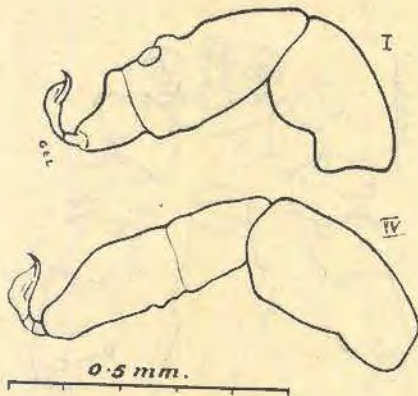


Fig. 22.

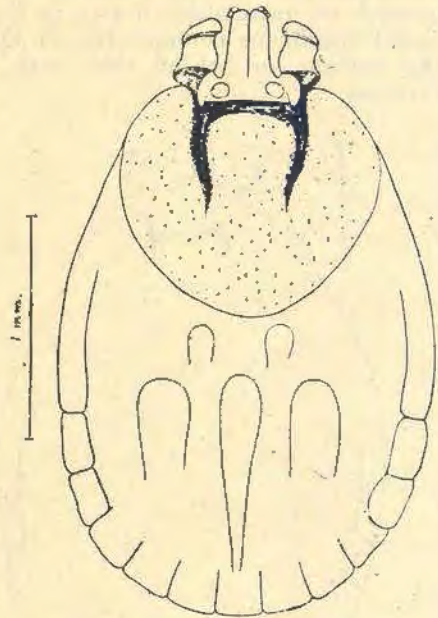


Fig. 23.

Fig. 22.—*Haemaphysalis silacea* ♂, Tarsus I and Tarsus IV. G. E. Laurence del.

Fig. 23.—*Haemaphysalis silacea* ♀, dorsal view, after Nuttall and Warburton (1913). Fig. 349. Note the posterior grooves are incorrectly drawn.

Legs; Coxa I only slightly visible dorsally. Coxae rectangular to squarish. Coxa I with an internal spur. Spurs on Coxae II-IV median to internal in position, somewhat rounded. Trochantal spurs decreasing in size from I to IV. Tarsi as in the female.

Ventral surface as in the female.

Larva. (Figs. 31-34.)

Coxa I visible dorsally. *Scutum* broader than long; postero-lateral border sinuous, posterior border broadly rounded. Cervical grooves short; punctations few, as in figure.

Rostrum short; *Basis capituli* rather triangular. Palps short and squat, the division between articles II and III not always visible, offering the same general appearance as the nymphal palps; mandibles frequently divided.

Legs as in the nymph. The *coxal* spurs are short and rounded.

Ventral surface, anus inadvertently omitted from the drawing.

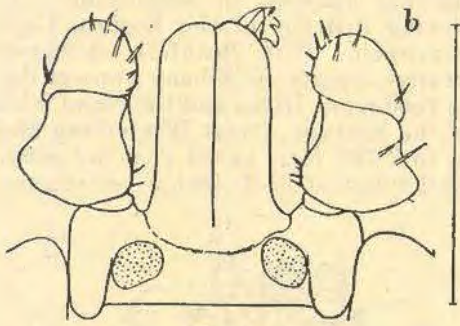


Fig. 24.

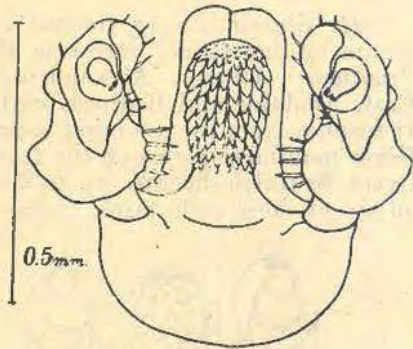


Fig. 25.

Fig. 24.—*Haemaphysalis silacea* ♀. Rostrum, dorsal view. Nuttall and Warburton (1913). Fig. 349.

Fig. 25.—*Haemaphysalis silacea* ♀. Rostrum, ventral view. Nuttall and Warburton (1913). Fig. 349.

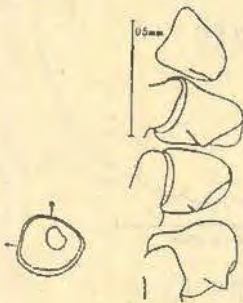


Fig. 26.

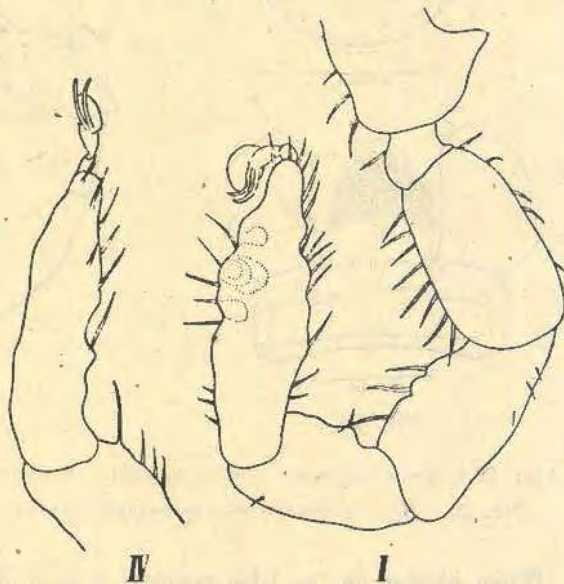


Fig. 27.

Fig. 26.—*Haemaphysalis silacea* ♀, ventral view. Fig. 349. Nuttall and Warburton (1913).

Fig. 27.—*Haemaphysalis silacea* ♀, Tarsus I and Tarsus IV. Nuttall and Warburton (1913). Fig. 349.

Type described from four females from Gonubie Park, East London. The male, nymph and larva drawn from specimens reared at Onderstepoort.

Host. Mostly on cattle, but also recorded from sheep and goat; collected once off a lynx and twice off the bushbuck.

Distribution.

H. silacea is very limited and somewhat localised in distribution. It occurs on individual farms in the following districts of the Eastern Cape Province: Albany, Alexandria, Stockenström, Fort Beaufort, Somerset East, Adelaide and Bedford, with its greatest density in Albany apparently. It reaches from the sea coast between the Bushmans River and the Great Fish River mouths to farms on the foothills of the Katberg, Great Winterberg and Groot Bruintjieshoogte, up to 2,500 feet to 2,700 feet, but it does not occur on top of these mountains. It has a rainfall range of 12-25 inches per annum.

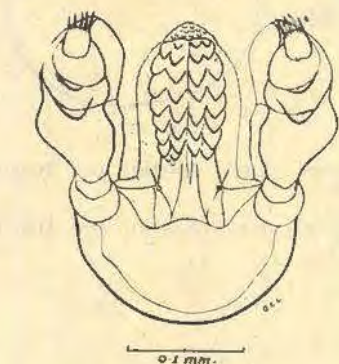


Fig. 28.

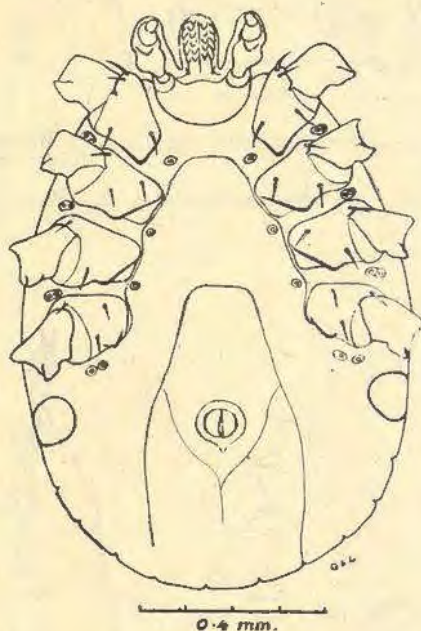


Fig. 29.

Fig. 28.—*Haemaphysalis silacea* nymph. Rostrum ventral and dorsal view.

Fig. 29.—*Haemaphysalis silacea* nymph, ventral view. G. E. Laurence del.

When plotted on the 1936 vegetation map of the Department of Agriculture, it is seen to occupy the southern end of the "tall grass" strip. This would lead one to assume that it should be evenly distributed throughout the area, that it should extend northwards into the Transkei and into Natal (Bedford, 1939, incorrectly gives *H. silacea* the popular name of the Transkei tick).

The vegetative covering of the Eastern Province, however, is not as uniform as the map implies. On the contrary, it is rather complex. The area is broken up by larger and by lesser river valleys with plateaux of varying sizes in between.

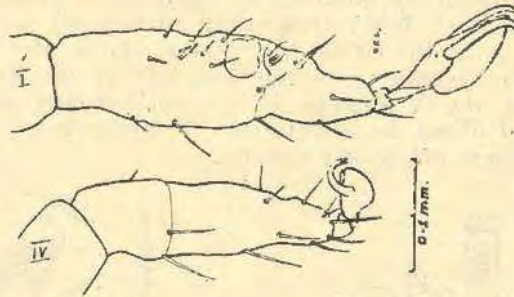


Fig. 30.—*Haemaphysalis silacea* nymph. Tarsus I and Tarsus IV. G. E. Laurence del.

The plateaux are usually well covered with sour- or sweetgrass. The vegetational covering may be pure grassland, or grassland encroached upon by thorn bush, or grassland encroached upon by the ordinary short Karroo scrub. The dry, hot river valleys, however, are usually covered with xerophytic thickets, mostly of a tall karroid scrub complex, known as the Fish River Bush; or nearer the coast there is an encroachment of the more coastal, sub-tropical evergreen and deciduous bush complex.

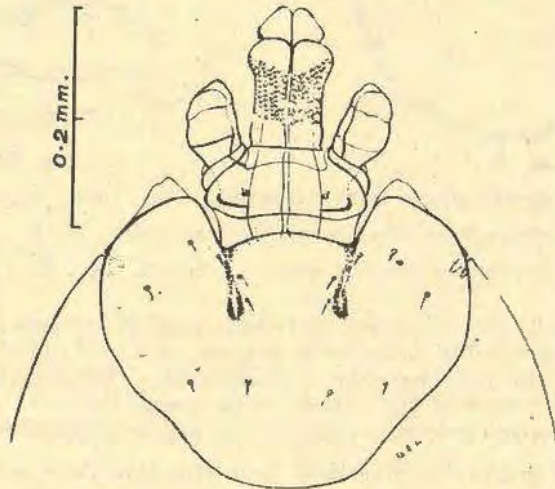


Fig. 31.—*Haemaphysalis silacea* larva, dorsal view. G. E. Laurence del.

However, upon carefully checking up on the vegetation of those farms from which ticks have been collected, it is seen that the common factor is not the nature of the grass, as implied by the official vegetation map, as the type of scrub, the Fish River Bush. So that it would seem, one can safely conclude, that the potential range of *H. silacea* is wherever this particular type of tall karroid bush occurs, with possible incursions into the more luxuriant

coastal valleys, via a mixture of these two complexes. This would account for its absence on these farms, within the distributional area, which are entirely situated on the plateaux and whose vegetative covering is essentially grass land or short karroo scrub.

The karroid Fish River Bush occurs essentially—(1) on the banks and in the valleys of the Fish River, beginning principally about Junctiondrift, where the Little- joins the Great Fish River, and is also to be found along all its tributaries; extending a considerable way up the Kat and the Koonap Rivers; (2) along the Bushmans River; commencing about the level of Commadagga, and along its tributaries; (3) along most of the lesser river systems between these two larger streams.

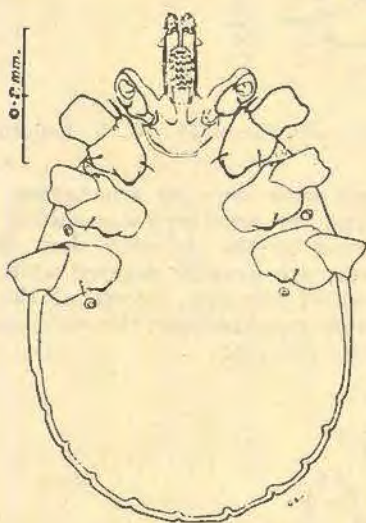


Fig. 33

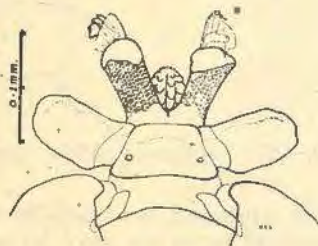


Fig. 32.

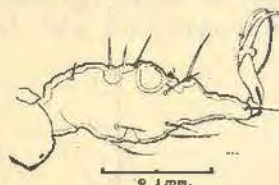


Fig. 34.

Fig. 32.—*Haemaphysalis silacea* larva. Rostrum, dorsal view. G. E. Laurence del.

Fig. 33.—*Haemaphysalis silacea*, larva, ventral view. G. E. Laurence del.

Fig. 34.—*Haemaphysalis silacea*, larva. Tarsus I. G. E. Laurence del.

It is difficult to say what the distribution of *H. silacea* has been in the past. It may conceivably have been present in the Peddie area up to the Keiskama river, but may have been eradicated either by the deforestation alone of the greater part of the valleys or in association with the overgrazing practised in this native reserve, or possibly it may even have been dipped out.

The tick was originally described from Gonubie Park not far from East London (i.e., in an area well outside its present limits) off cattle allowed to run in a camp from which stock had been excluded for two years. This herd may have been local oxen or introduced oxen, in all probability introduced oxen. Whether the tick is still present at Gonubie Park has not been ascertained; it certainly has not been sent in from any of the collecting farms in the near neighbourhood. Another similar isolated record is from the Humansdorp district from a farm Die Woud, situated near the Gamtoos river mouth. This undoubtedly represents a recent introduction. But whether the tick will be able to maintain itself here seems problematical, for

although the river valley is well wooded, it is moister and has the Western Province sclerophyllous type of vegetation, which is quite different from the Eastern Province dry karroid scrub thickets in which *H. silacea* is at home.

The two isolated records off *Tragelaphus sylvaticus*, the bushbuck, one from Empangeni, Zululand, and the other from Mount Edgecombe, Natal, are difficult to explain, unless once again it is a case of introduced cattle.

SUMMARY.

1. The descriptions of the adults of *H. aciculifer*, *H. parmata* and *H. silacea* and of the immature stages of *H. parmata* are brought up to date.

2. The larvae and nymphae of *H. aciculifer* and of *H. silacea* are described for the first time.

3. The discontinuous distribution of *H. aciculifer* in the Union is shown to be due to the facts (a) that this is an introduced tick, (b) that the introduced cattle distributed from dispersal centres, were only sent where they were needed and not to all farms in any given region, (c) the tick only managed to maintain itself in those areas where conditions were favourable. Cold and frost seem to be the factors limiting its distribution.

4. *H. silacea* is shown to be confined to the Fish River Bush, so characteristic of certain parts of the Eastern Province of the Cape Colony.

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