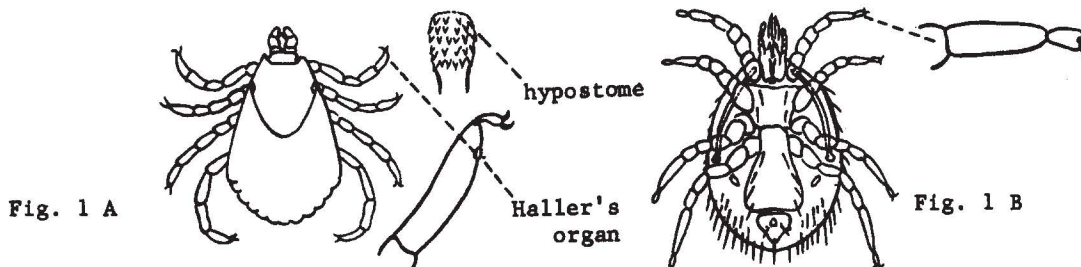


**ACARINA: ILLUSTRATED KEY TO SOME COMMON ADULT FEMALE MITES AND ADULT TICKS**  
**Harry D. Pratt and Chester J. Stojanovich**

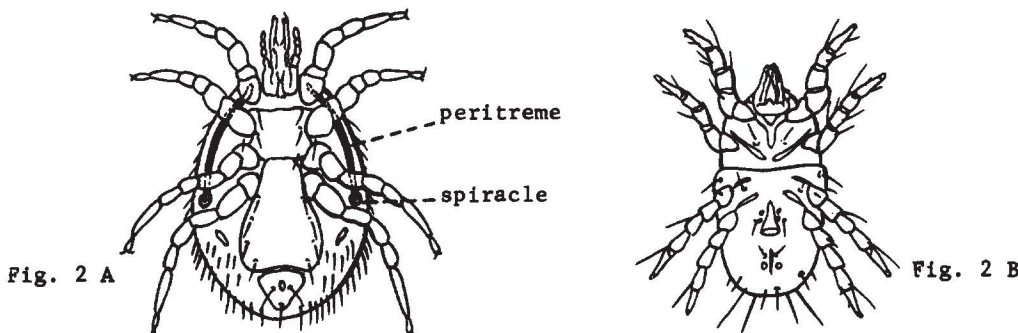
1. Last segment of first leg with a depression known as Haller's organ; most species with a toothed hypostome on capitulum; size usually over 4 mm. (Fig. 1 A). Ticks .....21

Last segment of first leg without such a depression known as Haller's organ; hypostome not toothed; most species less than 4 mm. long (Fig. 1 B). Mites..... 2



2. Respiratory system with a spiracle on each side opening lateral to the bases of the 3rd or 4th pair of legs, frequently spiracles leading into slender tubes that extend forward laterally to the bases of the 1st or 2nd pairs of legs Fig. 2 A). Mesostigmatid Mites. 3

Respiratory system without spiracles, or with spiracles opening near bases of the chelicerae (Fig. 2 B).....13



3. Anus surrounded by a plate bearing only 3 setae, one on each side and one behind the anal opening; first tarsus bearing caruncle and claws at tip (Fig. 3 A).....4

Anus surrounded by a plate bearing more than 3 setae; first tarsus without caruncle and claws (Fig. 3 B)..... Many species of Macrocheles



4. Anal opening more than its length behind anterior margin of anal plate; chelicerae strongly narrowed apically, needle-like, movable chela absent or extremely small (Fig. 4 A). Genus Dermanyssus ..... 5

Anal opening less than its length or about its length, behind anterior margin of anal plate; chelicerae not narrowed apically and needle-like, shear-like, bearing conspicuous shear-like chelae at tip which may or may not bear teeth (Fig. 4 B)..... 7

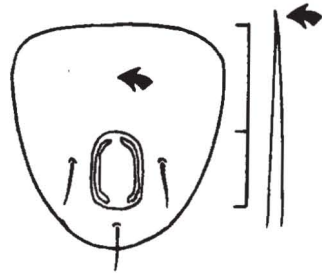


Fig. 4 A

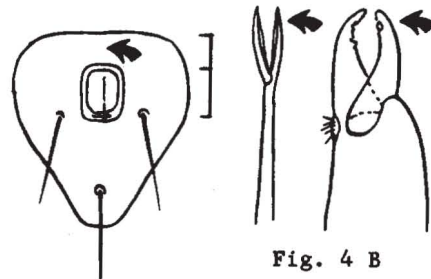


Fig. 4 B

5. Dorsal surface of body with a single plate (Fig. 5 A).....6

Dorsal surface of body with two plates, a large anterior plate and a small posterior plate (Fig. 5 B). Dermanyssus sanguineus ..... HOUSE MOUSE MITE

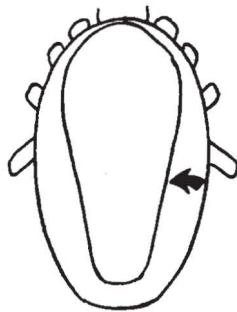


Fig. 5 A

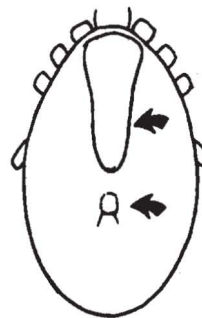


Fig. 5 B

6. Peritreme tube somewhat sinuous and extending anteriorly to a point opposite coxa 2 (Fig. 6 A). Dermanyssus gallinae..... CHICKEN MITE

Peritreme tube short, extending forward for a distance less than half the diameter of coxa 3 (Fig. 6 B). Dermanyssus americanus..... AMERICAN BIRD MITE

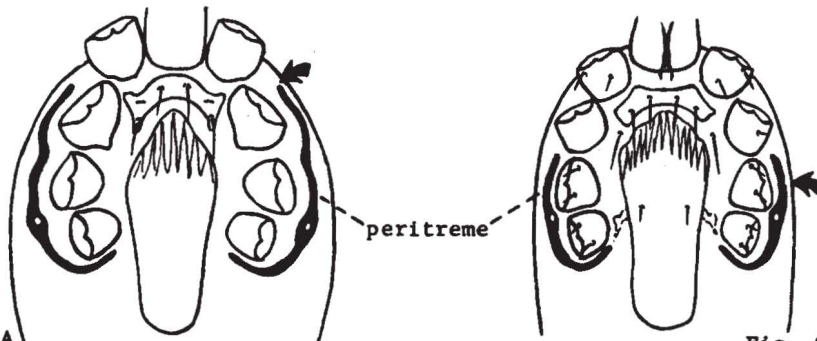
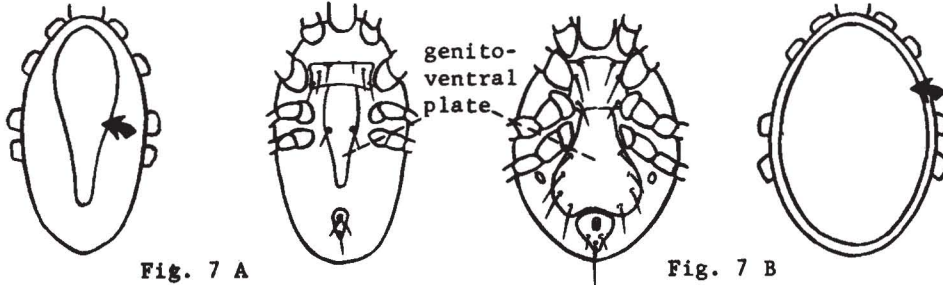


Fig. 6 A

Fig. 6 B

7. Dorsal plate not covering entire dorsal surface of mite; genito-ventral plate typically narrowed posteriorly behind 4th coxae; chelae on chelicerae without teeth or setae (Fig. 7 A). Genus Ornithonyssus ..... 8

Dorsal plate almost covering entire dorsal surface of mite; genito-ventral plate typically expanded posterior to 4th coxae; one or both chelae of chelicerae with teeth and a seta (Fig. 7 B). Family Laelaptidae.....10



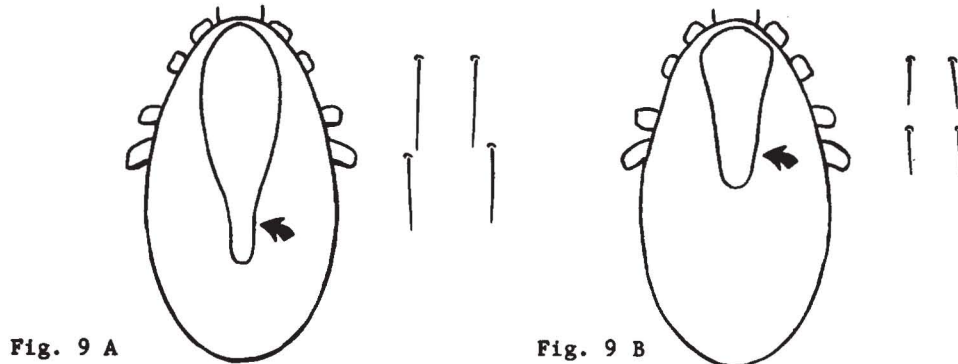
8. Sternal plate with anterior and middle pairs of sternal setae on the plate, posterior pair usually just off the plate (Fig. 8 A). On Birds... Ornithonyssus sylviarum.....  
..... NORTHERN FOWL MITE

Sternal plate with the usual three pairs of setae on the plate (Fig. 8 B)..... 9



9. Dorsal plate narrowed posteriorly; setae in middle dorsal row of plate longer than the distance between their bases (Fig. 9 A). Normally on mammals or man.....  
Ornithonyssus bacoti.....TROPICAL RAT MITE

Dorsal plate broader posteriorly; setae in middle dorsal row of plate much shorter than the distance between their bases (Fig. 9 B). Normally on birds.....  
Ornithonyssus bursa.....TROPICAL BIRD MITE



10. Genito-ventral plate with many fine setae; anal plate transverse, wider than long (Fig. 10 A). On domestic rats and a wide variety of wild mammals..... Eulaelaps stabularis

Genito-ventral plate with one to four pairs of setae; anal plate longer than wide (Fig. 10 B).....11

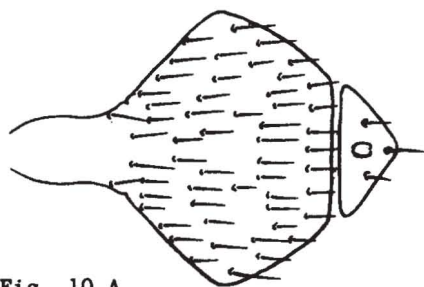


Fig. 10 A

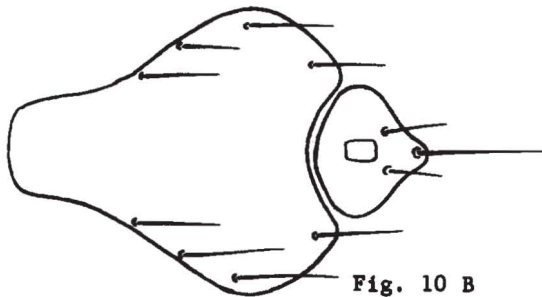


Fig. 10 B

11. Genito-ventral plate with only a single pair of setae (Fig. 11 A). On domestic rats and mice and a wide variety of mammals and birds.....  
Haemolaelaps glasgowi.....COMMON RODENT MITE

Genito-ventral plate with four pairs of setae (Fig. 11 B). Normally on domestic rats..12

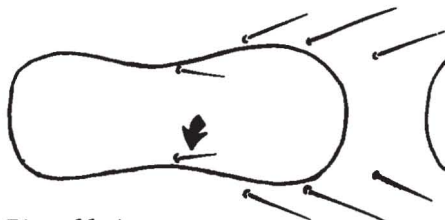


Fig. 11 A

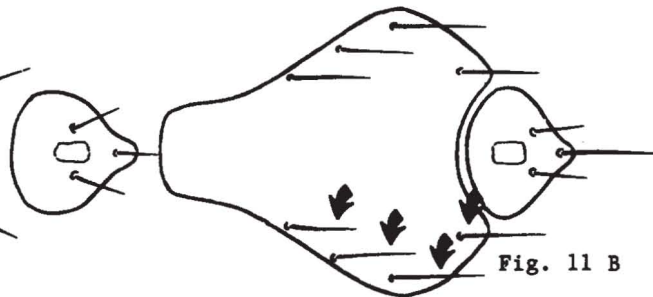


Fig. 11 B

12. Anal plate contiguous with the genito-ventral plate, anterior margin rounded and fitting into a strong concavity in genito-ventral plate; larger species averaging 1-2 mm. long. (Fig. 12 A). Echinolaelaps echidninus.....SPINY RAT MITE

Anal plate somewhat separated from genito-ventral plat, anterior margin almost straight with definite anterior-lateral corners; small species averaging 0.5-1 mm long (Fig. 12 B). Laelaps nuttalli.....DOMESTIC RAT MITE

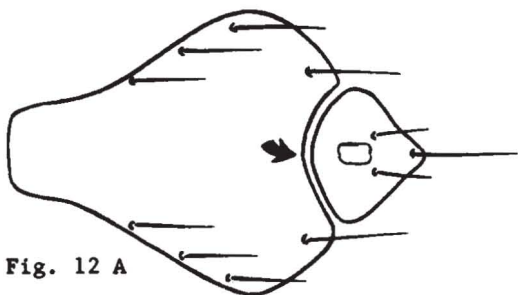


Fig. 12 A

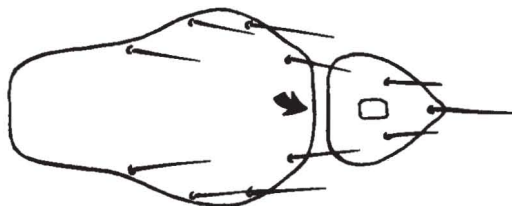


Fig. 12 B

13. First pair of legs very long, much longer than other three pairs; anterior margin of body with four distinct flattened scales and somewhat flattened scales on other dorsal surfaces of body (Fig. 13 A). Plant feeders which invade buildings but do not bite man. Bryobia praetiosa ..... CLOVER MITE

First pair of legs not markedly longer than the other three pairs of legs; no flattened scales on body (Fig. 13 B).....14

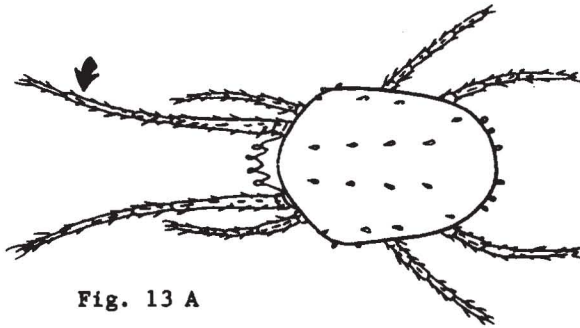


Fig. 13 A

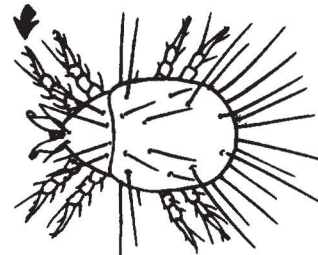


Fig. 13 B

14. Surface of body without fine parallel lines or folds; tarsi without stalked suckers (Fig. 14 A). Adults never true parasites (Cheese or Flour mites)..... 15

Surface of body with fine parallel lines or folds; tarsi often provided with stalked suckers (Fig. 14 B). Scabies or mange mites parasitic in all stages, chiefly on vertebrates .....16

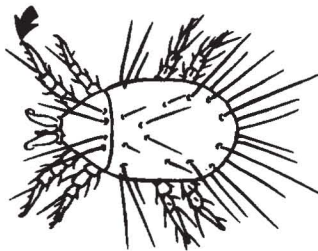


Fig. 14 A

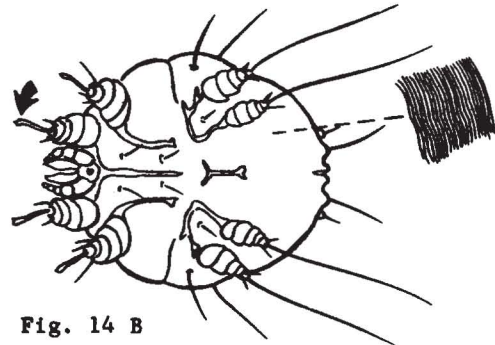


Fig. 14 B

15. Tarsi tapering markedly to tip (Fig. 15 A)..... Glycyphagus prunorum

Tarsi not tapering markedly to tip (Fig. 15 B). Many cheese and flour mites which are difficult to separate except with very specialized literature and a reference collection. .... Genus Tyrophagus, Genus Caloglyphus, Etc



Fig. 15 A

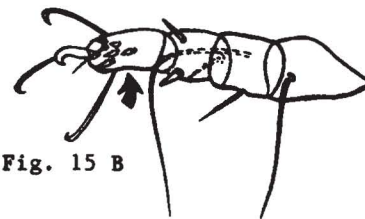


Fig. 15 B

16. Body elongate, somewhat cigar-shaped and prolonged behind; the abdomen somewhat ringed; legs very short, apparently three-segmented; tiny species less than 1 mm. (Fig. 16 A). In hair follicles or sebaceous glands of mammals.....  
Demodex folliculorum..... PORE OR FOLLICLE MITE

Body not prolonged behind and cigar-shaped (Fig. 16 B). Occasionally female grain itch somewhat balloon-shaped; larger species not found in hair follicle or sebaceous glands of mammals..... 17



Fig. 16 A

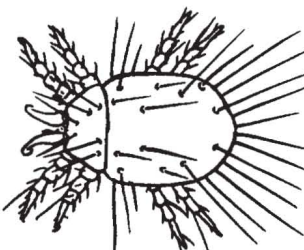


Fig. 16 B

17. A club-shaped or clavate hair between bases of first and second pairs of legs, body divided into cephalothorax and abdomen, the latter often enormously enlarged (Fig. 17 A) Pyemotes ventricosus formerly Pediculoides ventricosus..... STRAW ITCH MITE

Setae on cephalothorax normal, no club-shaped or clavate hair between bases of first and second pairs of legs; no distinct division into cephalothorax and abdomen (Fig. 17 B) .....18

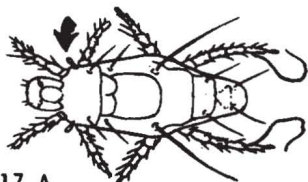


Fig. 17 A

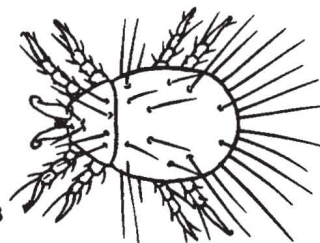


Fig. 17 B

18. Legs short and stubby (Fig. 18 A).....20  
 Legs longer and more slender (Fig. 18 B).....19

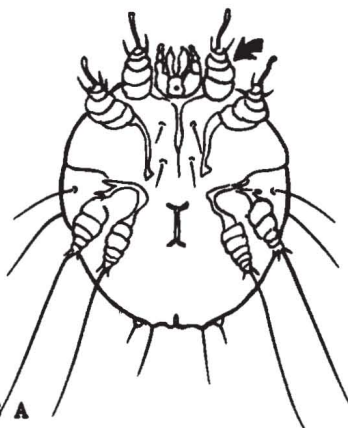


Fig. 18 A

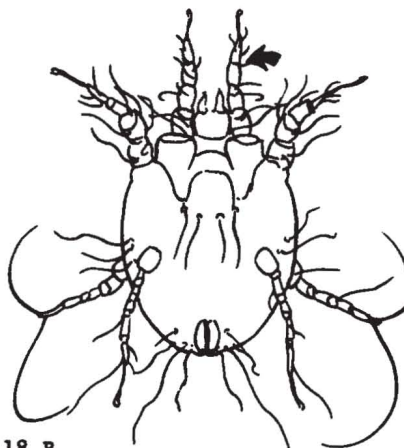


Fig. 18 B

19. Suckers of tarsi with segmented pedicels (Fig. 19 A). Non-burrowing itch mites on mammals in the genus Psoroptes, a common species causing scabs and crusts in the ears of rabbits is the Psoroptes cuniculi..... RABBIT EAR MITE

Suckers of tarsi without segmented pedicels (Fig. 19 B).....  
 ..... Dermatophagoides scheremetewskyi



Fig. 19 A



Fig. 19 B

20. Anal opening on the dorsal surface of the body; dorsal surface of the body with only short, sharp setae (Fig. 20 A).....Notoedres

Anal opening at tip of body or slightly on ventral side; dorsal surface of body with pointed scales and blunt stout spines (Fig. 20 B). Sarcoptes scabiei.....  
 ..... SCABIES OR MANGE MITE

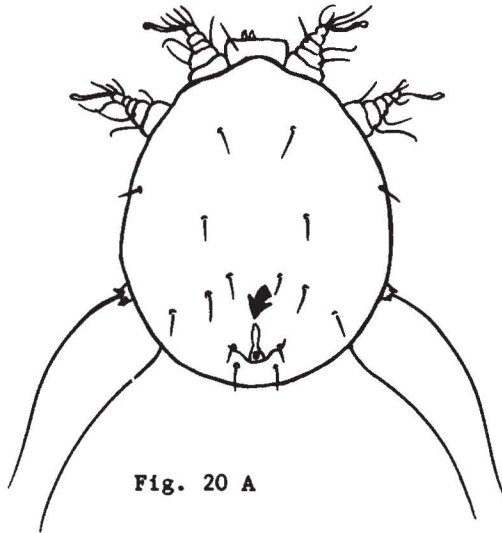


Fig. 20 A

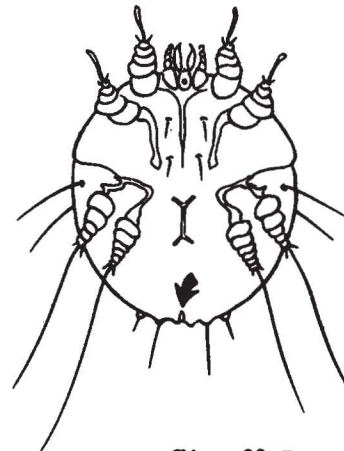


Fig. 20 B

21. Capitulum at anterior end of body, visible from above and below; scutum or dorsal shield present, short in female, long in male (Fig. 21 A & B). Family Ixodidae..HARD TICKS...22

Capitulum on under side of body, hidden by body when seen from above though palpi may project anteriorly; scutum absent (Fig. 21 C & D). Family Argasidae.....SOFT TICKS....31

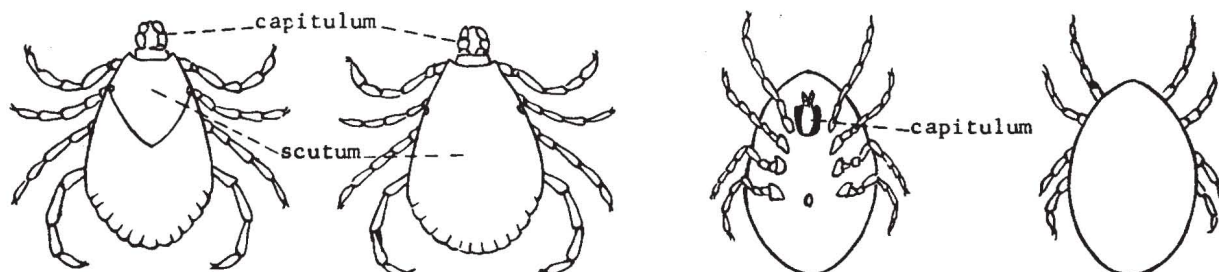


Fig. 21 A

Fig. 21 B

Fig. 21 C

Fig. 21 D

FAMILY IXODIDAE - HARD TICKS

22. Ornate ticks, with some white markings on dorsal shield (Fig. 22 A).....23

Inornate ticks, without white markings on dorsal shield (Fig. 22 B).....28

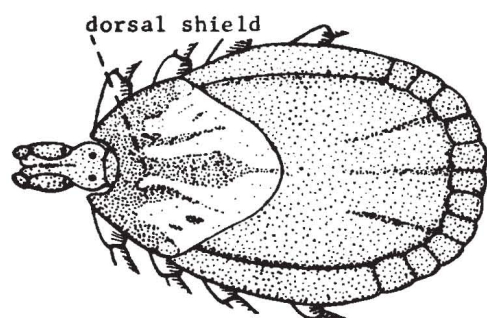


Fig. 2 A

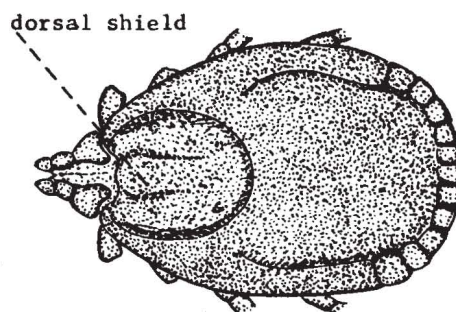


Fig. 2 B

23. Palpi long, much longer than basis capituli; second segment of palpus about twice as long as wide (Fig. 23A). Genus Amblyomma.....24

Palpi short, about as long as basis capituli; second segment of palpus about as long as wide (Fig. 23 B). Genus Dermacentor.....25

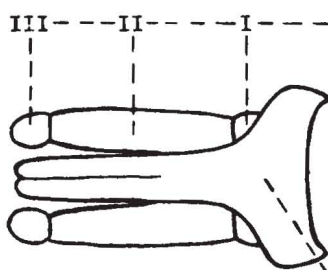


Fig. 23A

basis capituli

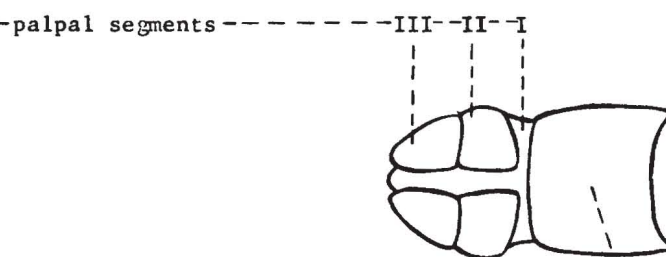


Fig. 23 B

basis capituli



24. Next to last segment of second, third, and fourth pairs of legs without paired terminal spurs; female with a distinct pale marking near posterior end of dorsal shield (Fig. 24 A). Amblyomma americanum.....LONE STAR TICK

Next to last segment of second, third, and fourth pairs of legs with long, paired terminal spurs; female with more diffuse markings on dorsal shield (Fig. 24 B).....  
Amblyomma maculatum.....GULF COAST TICK

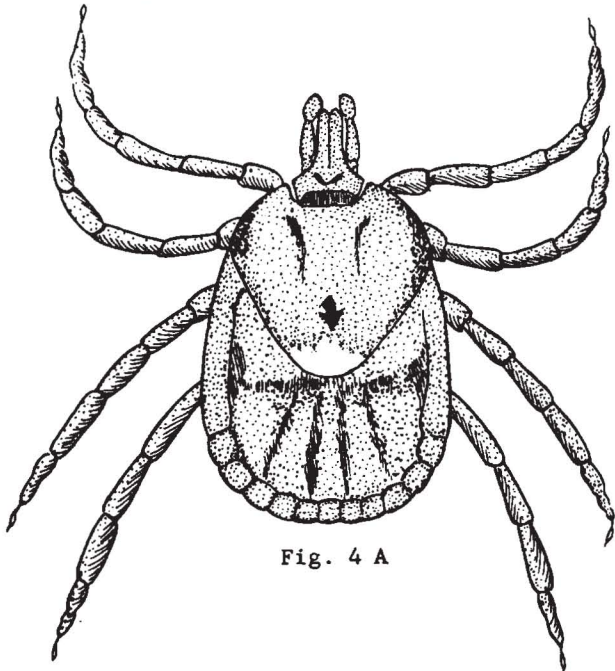


Fig. 4 A

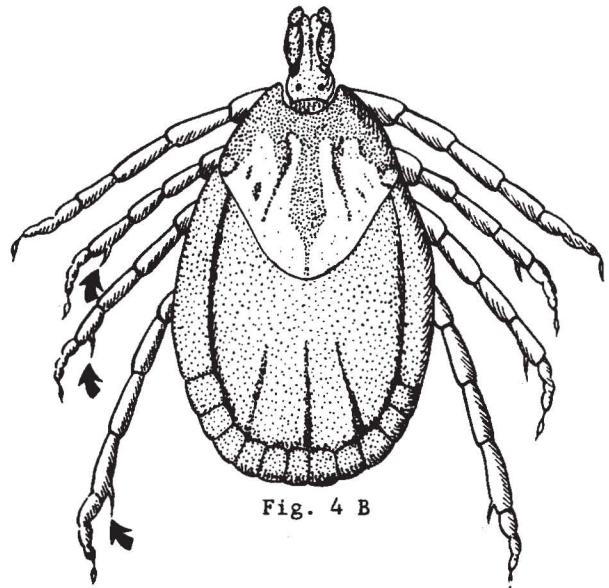


Fig. 4 B

25. Spiracular plate without dorsal prolongation (Fig. 25 A). Dermacentor albipictus.....  
 .....WINTER TICK
- Spiracular plate with dorsal prolongation (Fig. 25 B).....26

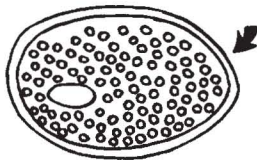


Fig. 25 A

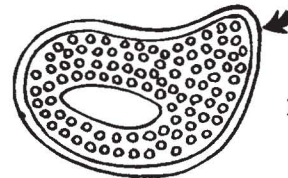


Fig. 25 B

26. Basis capituli with long cornua (Fig. 26 A). Dermacentor occidentalis.PACIFIC COAST TICK
- Basis capituli with short cornua (Fig. 26 B)..... 27

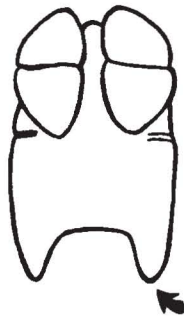


Fig. 26 A

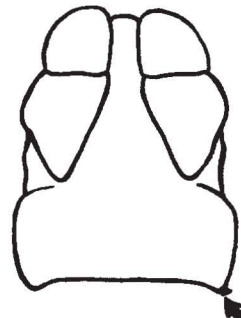


Fig. 26 B

27. Goblets of spiracular plate large and less numerous; Rocky Mountain species. (Fig. 27 A)  
Dermacentor andersoni.....ROCKY MOUNTAIN WOOD TICK

Goblets of spiracular plate very small and numerous; east of the Rocky Mountains and on the Pacific coast. (Fig. 27 B). Dermacentor variabilis.....AMERICAN DOG TICK

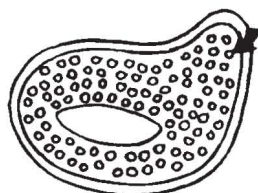


Fig. 27 A

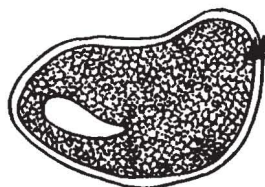


Fig. 27 B

28. Sides of basis capituli laterally produced; distinctly angulate; eyes present on sides of scutum (Fig. 28 A & B).....29

Sides of basis capituli not laterally produced; more or less parallel (Fig. 28 C); eyes absent.....30

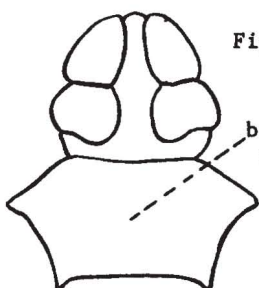


Fig. 28 A

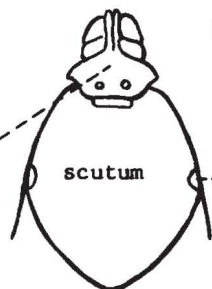


Fig. 28 B

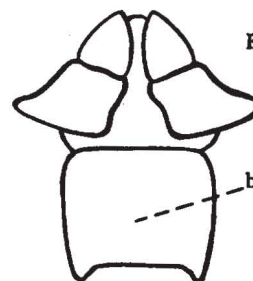


Fig. 28 C

basis capituli

scutum

eye

basis capituli

29. Fore coxa deeply cleft; festoons present; easily seen in unengorged specimens; anal groove distinct in unengorged specimens (Fig. 29 A). (principally on dogs or in houses)  
Rhipicephalus sanguineus.....BROWN DOG TICK

Fore coxa not deeply cleft; festoons absent; anal groove indistinct (Fig. 29 B). (On cattle and deer). Boophilus annulatus.....CATTLE TICK

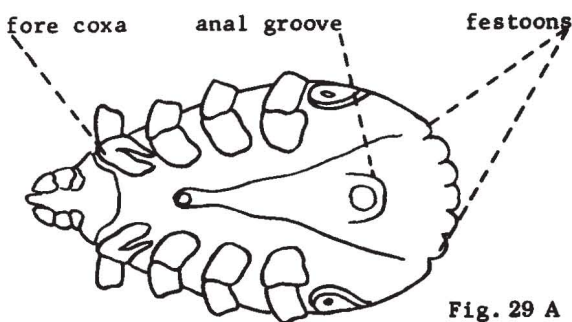


Fig. 29 A

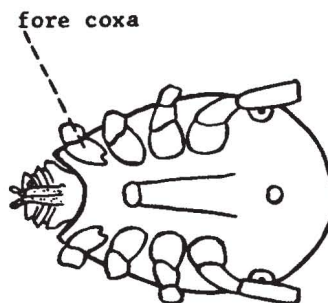


Fig. 29 B

fore coxa

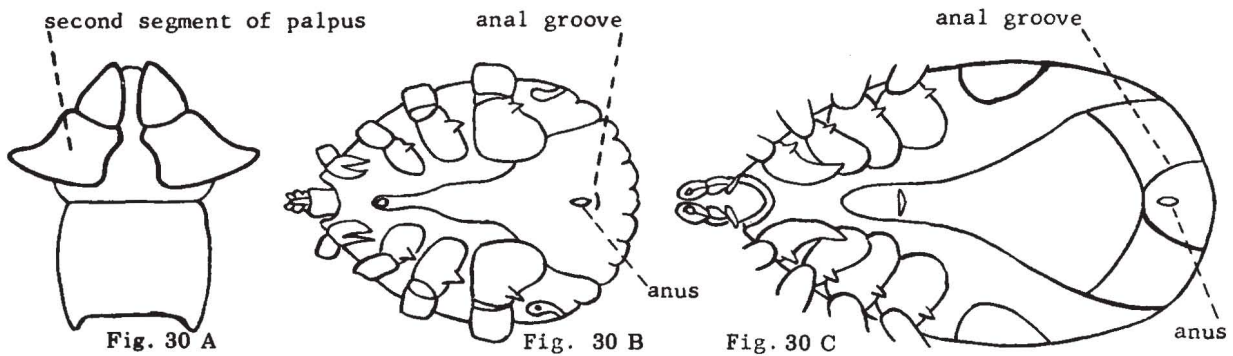
anal groove

festoons

fore coxa

30. Second segment of palpus laterally produced; anal groove behind anus, not attaining posterior margins of body (Fig. 30 A & B). Haemaphysalis leporispalustris.....RABBIT TICK

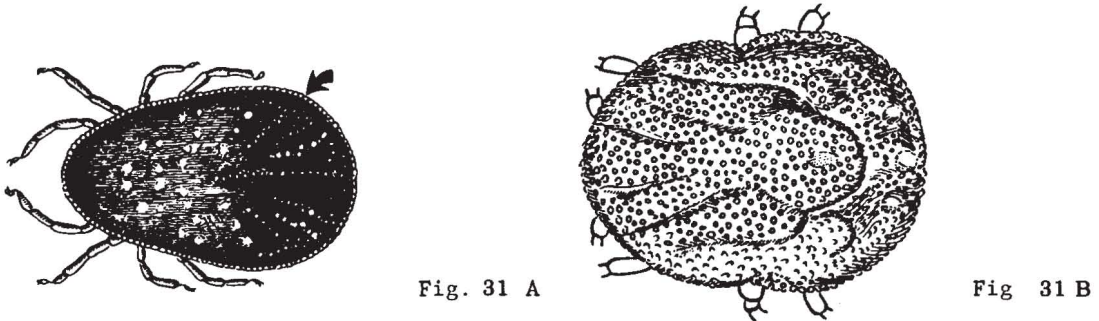
Second segment of palpus not laterally produced; anal groove extending as an inverted U from in front of anus to posterior margins of body (Fig. 30 C).....Genus Ixodes



FAMILY ARGASIDAE - SOFT TICKS

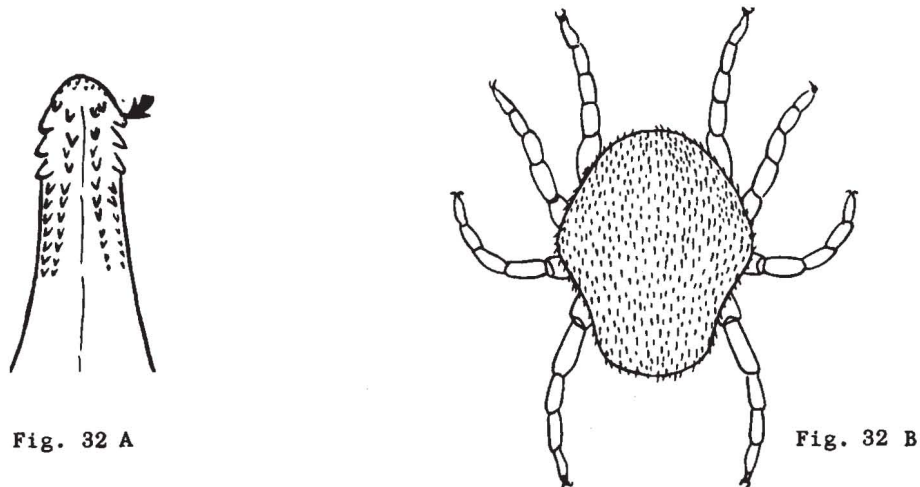
31. Margin of body with a definite sutural line separating dorsal and ventral surfaces; dorsal surface with conspicuous "discs" arranged somewhat in radiating lines (Fig. 31 A) Argas persicus.....FOWL TICK

Margin of body lacking definite sutural line, thick and rounded (Fig. 31 B).....32



32. Hypostome with well-developed teeth (Fig. 32 A); integument not spinose..... Genus Ornithodoros.....33

Hypostome of adult vestigial or without effective teeth; integument of nymph (stage usually seen) spinose (Fig. 32 B). Usually on cattle and horses..... Otobius megnini.....SPINOSE EAR TICK



33. Strong dorsal humps absent on all tarsi (Fig. 33 A).....34  
 Strong dorsal humps present on tarsi of first, second and third legs (Fig. 33 B).....35



Fig. 33



Fig. 33 B

34. Cheeks absent (Fig. 34 A). Ornithodoros hermsi.....HERMS' RELAPSING FEVER TICK  
 Cheeks present (Fig. 34 B).....Ornithodoros talaje

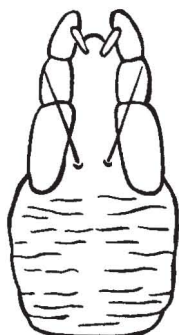


Fig. 34 A



Fig. 34 B

35. Eyes present on sides of body above second and third coxae (Fig. 35 A); tarsus of fourth leg with a prominent, pointed subterminal spur (Fig. 35 B).....Ornithodoros coriaceus.....PAJAROELLO TICK  
 Eyes absent; tarsus of fourth leg without such subterminal spur (Fig. 35 C).....15

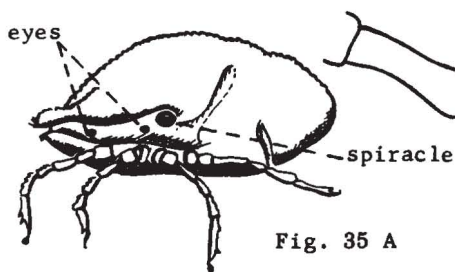


Fig. 35 A

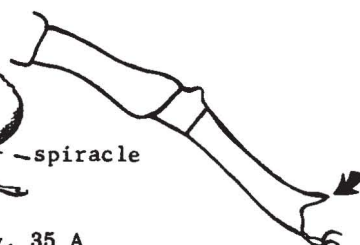


Fig. 35 B

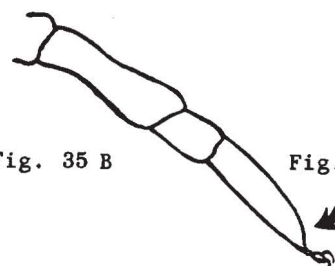


Fig. 35 C

36. Mammillae large, relatively few and not crowded; in mid-dorsal region about 10 per linear mm.; hypostome over 1/2 mm. long. Southeastern United States and Mexico north to Kansas and Florida. Ornithodoros turicata.....RELAPSING FEVER TICK  
 Mammillae small, crowded, and numerous; in mid-dorsal region about 18 per linear mm.; hypostome less than 1/2 mm. long. Pacific coast and Rocky Mountain states.....Ornithodoros parkeri.....PARKER'S RELAPSING FEVER TICK