

## PARTHENOGENESIS IN *DERMACENTOR VARIABILIS* (SAY)

BY

S. K. NAGAR.

(Department of Biology Delhi College, Delhi-6, India).

Sex determining mechanisms reported operative among ticks are of three kinds, viz., parthenogenesis (thelytoky), X-Y and X-O.

Parthenogenesis has been described to occur in *Amblyomma agamum* (later synonymized as *A. rotundatum*) and *A. dissimile* by ARAGAO (1912) and BODKIN (1918) respectively. NUTTALL (1913) reported parthenogenesis in *Rhipicephalus bursa* but later suggested it as a case of artificial parthenogenesis. PERVOMAIKII (1949) observed that a few F1 females of *Hyalomma anatolicum excavatum* could be reared from eggs laid by females in the absence of males. But one of the most interesting case in tick parthenogenesis is reported by BREMNER (1959). He has observed that complete parthenogenesis is the normal method of reproduction in the Australian strain of *Haemaphysalis bispinosa*.

One of the aspects, in the experimental investigations to study the feeding patterns and to delineate host-parasite relationship between *Dermacentor variabilis* and the laboratory rabbit, was whether the unmated ticks would engorge fully or partially and lay viable eggs?

The results presented in the table show that certain percentage of the eggs laid by unmated female ticks developed to the larval stage.

*Dermacentor variabilis* : Percentage of eggs hatching which were laid by unmated female ticks.

Reference No. & Weight of tick (mg)	Date eggs laid and collected	Appearance of 1st Larva	Completion of Hatching	Percentage of Hatching
ExLUN 1 (135.5)	August 7 1965	Sept. 3	Sept. 24	40
ExLUN 2 (105.5)	August 7/8 »	Sept. 3	Oct. 1	35
ExLUN 4 (79.7)	August 7/8 »	Sept. 3	Oct. 1	50
ExLUN 6 (99.2)	August 9/10 »	Sept. 5	Oct. 7	25
ExLUN 7 (71.0)	August 10/11 »	Sept. 15	Sept. 20	10
ExLUN 9 (88.7)	August 11/12 »	Sept. 17	Sept. 24	5
ExLUN 10 (99.9)	August 12/13 »	Sept. 16	Not observed	
ExLUN 3 (126.5)	August 13/14 »	Sept. 18	Not observed	
ExLUN 5 (130.0)	August 14/16 »	Fungal growth appeared		
ExLUN 8 (132.3)	August 16/17 »	Fungal appeared		

Although this is the first reported instance of parthenogenesis in *D. variabilis*, it has not been shown whether it is thelytokous as in other ticks inasmuch as the larvae were not reared to adulthood.

#### REFERENCES

- ARAGAO (H. de B.), 1921. — Beitrage zur Systematik und Biologie der Ixodidae. Mem. Inst. Osw. Cruz., **4** : 96.
- BODKIN (G. E.), 1918. — The biology of *Amblyomma dissimile* (Koch), with an account of its power of reproducing parthenogenetically. Parasit., **9** : 10.
- BREMNER (P.), 1959. — Observation on the biology of *Haemaphysalis bispinosa* Neumann (Acarina : Ixodidae) with particular reference to its mode of reproduction by parthenogenesis. Aust. J. Zool., **7** : 7.
- NUTTALL (G. H. F.), 1913. — Parthenogenesis in ticks. Parasit., **6** : 139.
- PERVOMAIKII (G. S.), 1949. — Zool. Zh., **28** : 523. Cited by ARTHUR (D. R.), 1962 : Ticks and diseases, Row, Peterson and Co., Elmsford, New York.