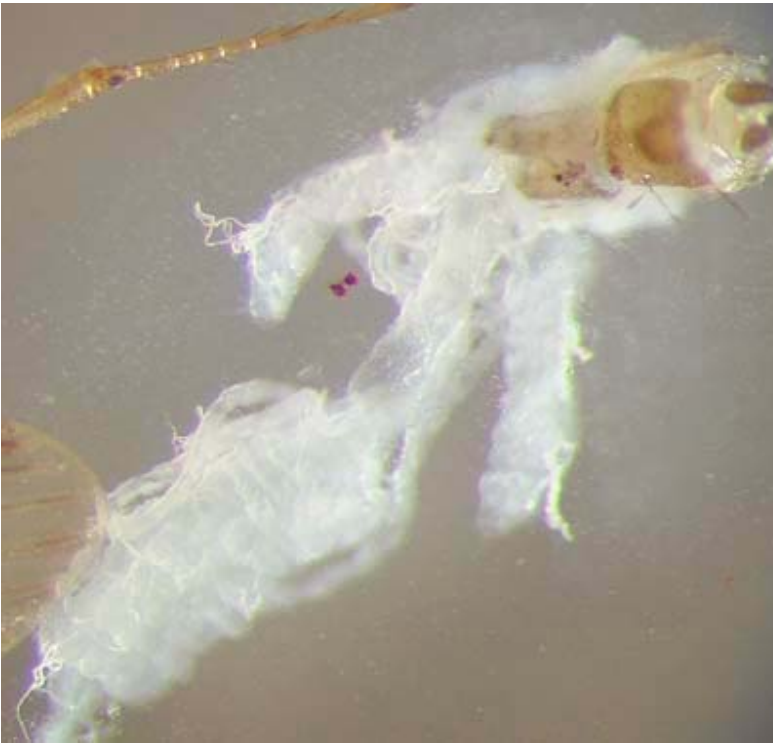
Ovary dissection



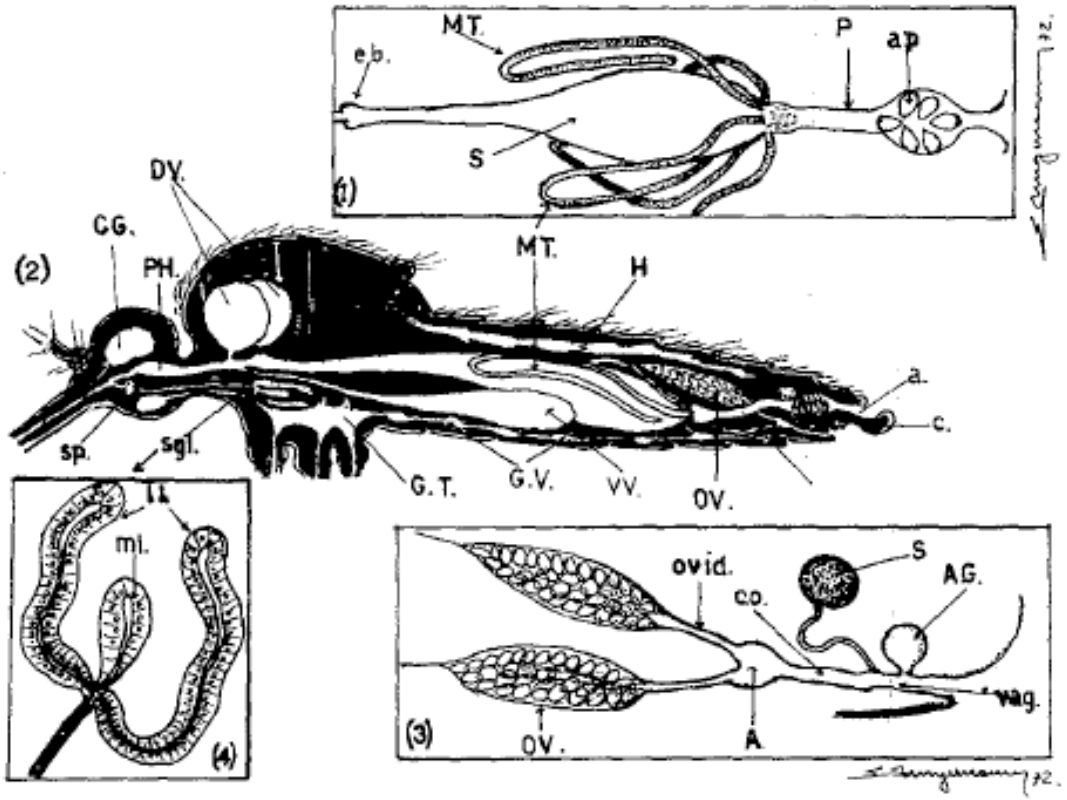
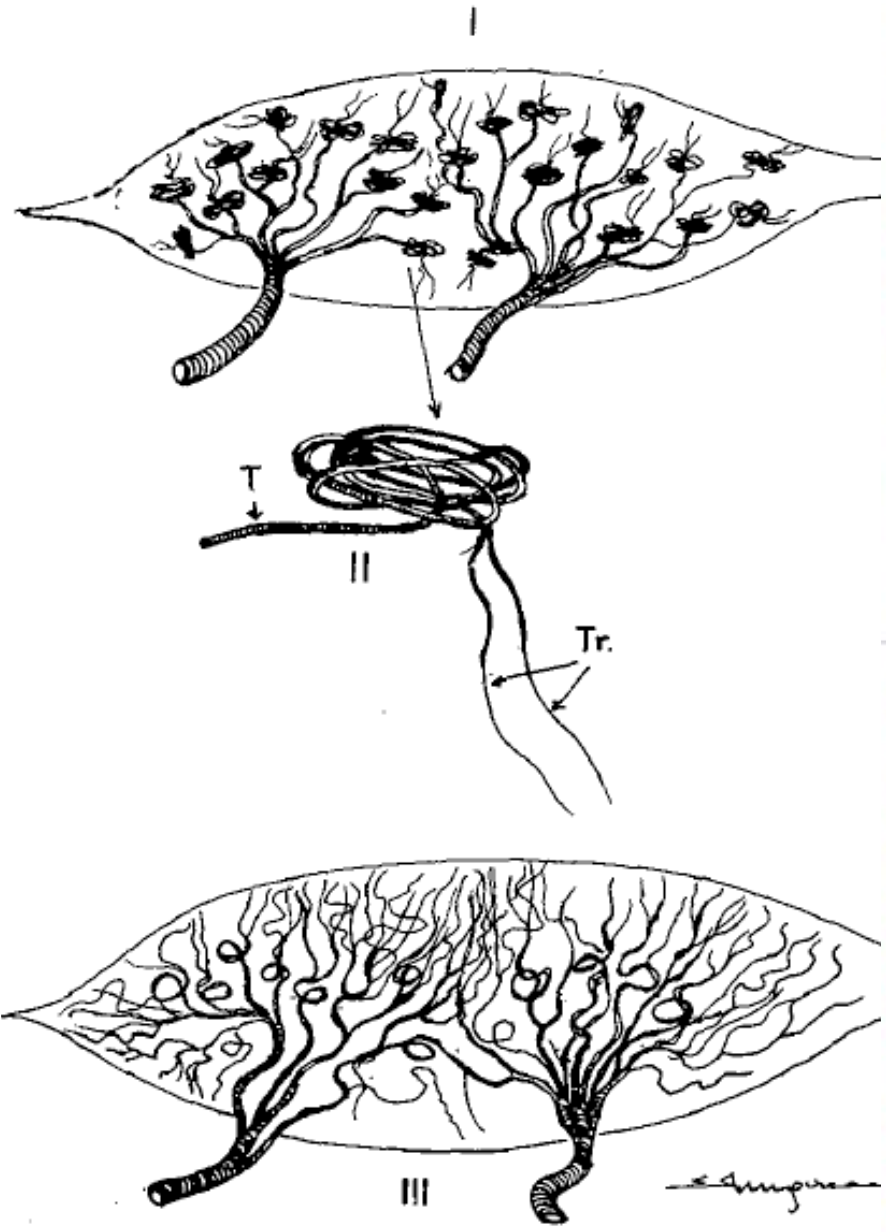
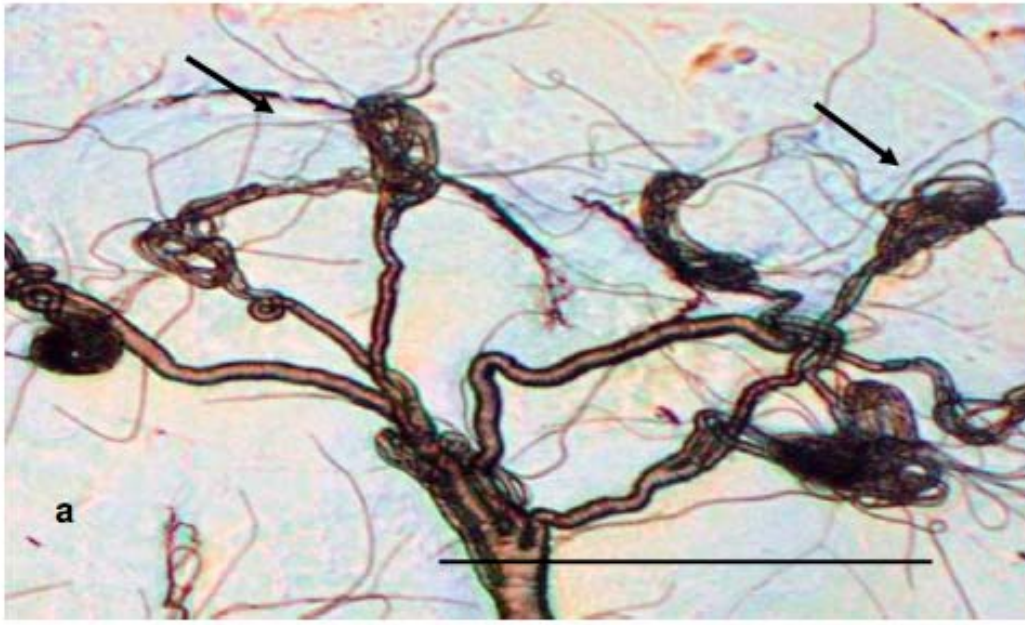


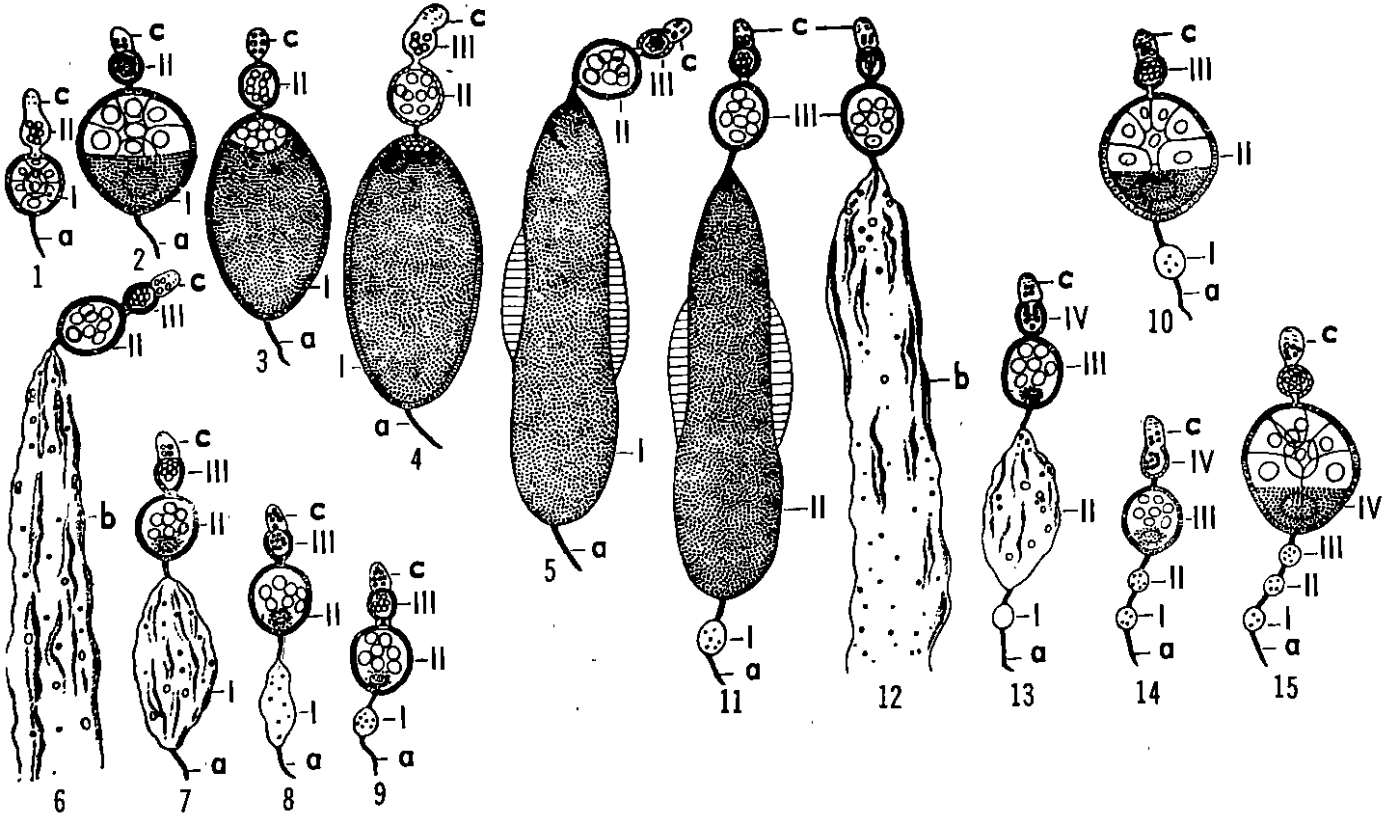
Fig. 48. Internal anatomy of female mosquito,
(1) Gut: eb = cardiac sphincter S = stomach (mid-gut)
MT = Malpighian tubes P = small intestine
AP = rectal papillae
(2) Longitudinal section through body: CG = cerebral ganglion
SP = salivary pump PH = pharynx Sgl = salivary glands
DV = dorsal diverticula GT = thoracic ganglia
GV = abdominal ganglia VV = crop MT = Malpighian tubes
OV = ovary H = heart A = anus C = cercus
(3) Female reproductive system: OV = ovary Ovid. = oviduct
A = ampullae CO = common oviduct S = spermatheca
AG = accessory gland Vag. = vagina
(4) Salivary gland: ML = middle lobe LL = lateral lobe.


I
T
II
Tr.
III


a


b

FIG. 5. FORMATION OF DILATATIONS IN OVARIOLES



1-5 Development of the follicle
6 Ovariole after the first ovulation: the wall of the ovariole is distended in the shape of a sac
7-9 Contraction of the sac and formation of the dilatation
10-11 Beginning and end of the development of the follicle during the second cycle
12 Ovariole after the second ovulation
13 Formation of the second dilatation
14-15 Ovarioles of females after the second and third gonotrophic cycle
I The first developing follicle and the place left after its discharge
II The second follicle and the place left after its discharge
III The third follicle and the place left after its discharge
IV The fourth developing follicle
a Terminal pedicle of the ovariole
b The intima dilated after the passage of the mature egg
c Growth zone

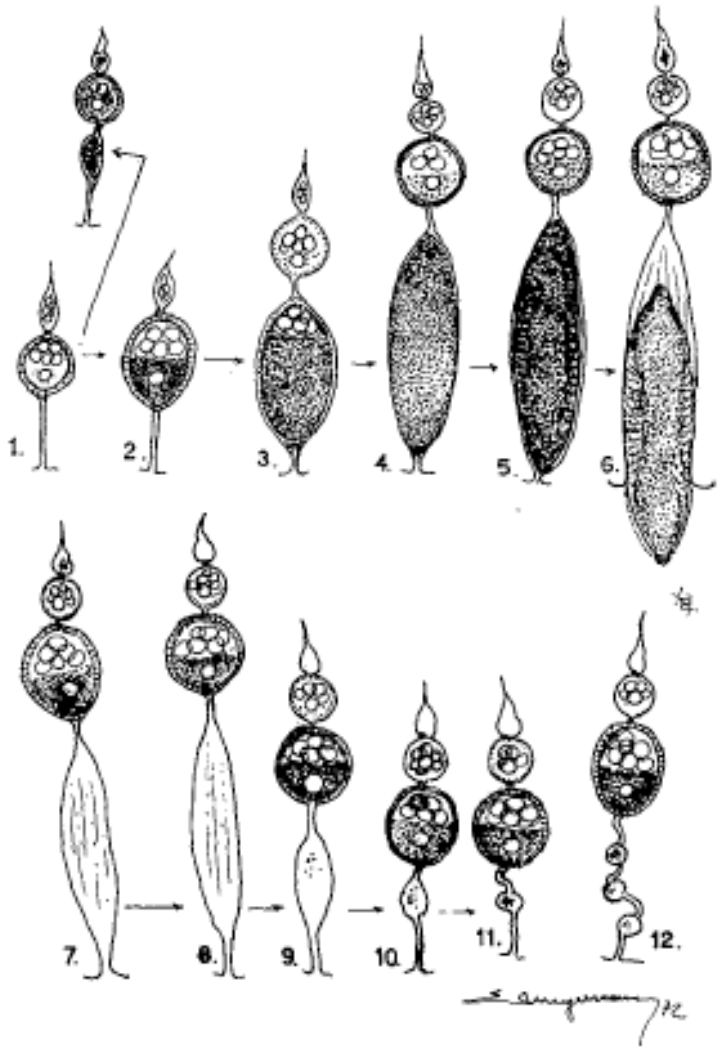


Fig. 53. Various stages of development of the ovarian follicle.

(1)-(5) = Christophers' stages I-V;
(7)-(10) = ovariolar sac in different stages of contraction;
(11) = ovariole with one dilatation;
(12) = ovariole with three dilatations.

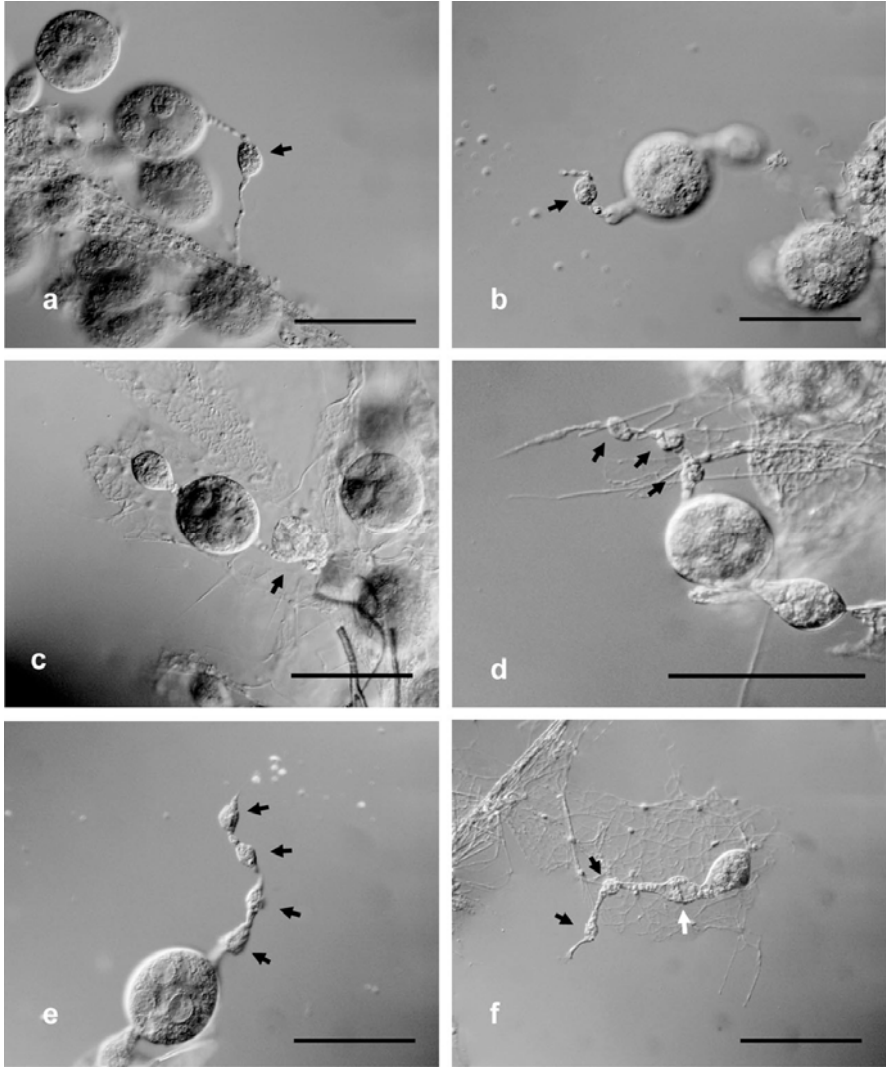
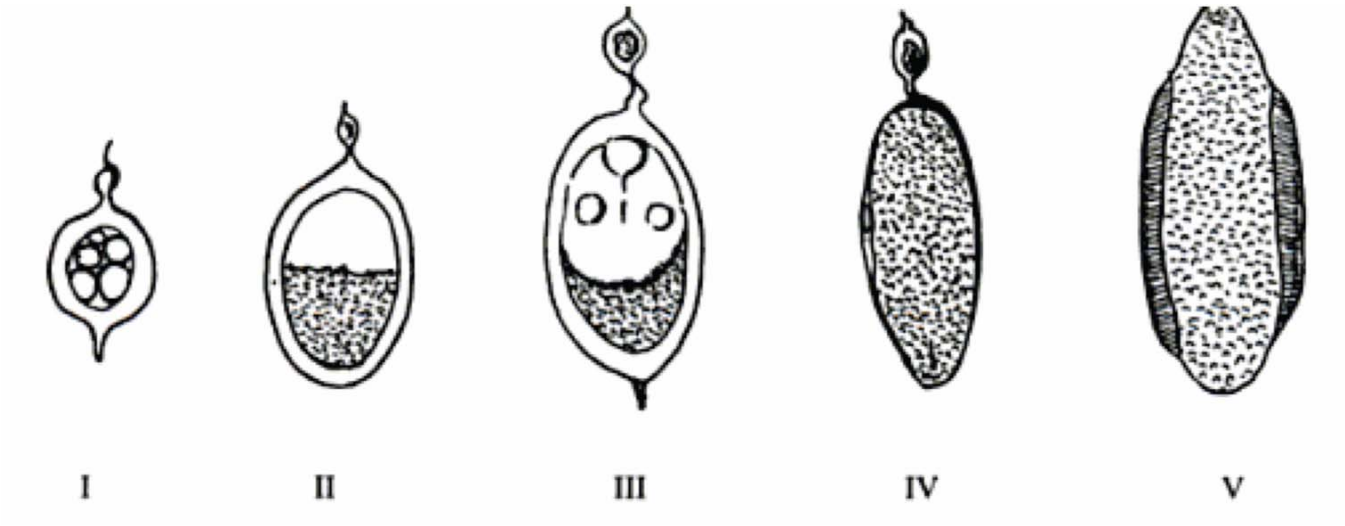


Fig. 9. Ovariolar forms with dilatations observed during dissections of Cx. annulirostris 1- to 3-parous females. (a) In situ ovariole with one clear dilatation (arrow). (b) Detached ovariole with one clear dilatation (arrow). (c) In situ ovariole with one dilatation (arrow) in the process of being formed, probably by the degeneration of aIVa follicle (as indicated by the presence of yellow, light refracting, yolk). (d) Detached ovariole with three dilatations (arrows) from a 3-parous female (e) Detached ovariole with four dilatations (arrows) observed from a 3-parous female. (f) Detached ovariole with degenerated primary follicle (white arrow) and two dilatations (black arrows). Scale bars 0.1 mm.



"Stage I, egg follicle round, yolk granules absent; Stage II, egg follicle oval, yolk granules present; Stage II-early, a few fine granules of yolk around the nucleus of the ovum; Stage II-mid, yolk granules easily visible under low power; Stage II-late, yolk granules very abundant occupying about half the follicle; Stage III, yolk occupying about three-quarters of the follicle; Stage IV, egg follicle sausage-shaped; Stage V, ova fully formed with well-developed floats."

A Blood-feeding stages

Human Landing Catch

(or Night Biting Collection)

- Gold standard of mosquito collection
- ethical and logistical issues

Pyrethrum Spray Catch

Resting Traps

Resting boxes

Resting pots

CDC light traps

Exit Traps

Collection Methods and Estimates

- Pyrethrum Spray Collection – abdominal appearance, sporozoite rate & density
- Exit Trap Collection – Abdominal appearance & density
- Night Biting Collection – Christophers' stages, Detinova, sporozoite rate & density
- Outdoor Resting Collection – Blood meal, abdominal appearance & density

Vectorial Capacity

- $C = (ma \times a \times p^n \times b)/(-\ln p)$
  - ma = human biting rate (number of vectors feeding on a human per day)
  - a = prob. a vector feeds on a host in 1 day
  - b = vector competence (proportion ingesting infectious meal that become infective)
  - p = prob. the vector will survive 1 day
  - n = duration of the Extrinsic Incubation Period (EIP) in days
  - (1/-ln p) = duration of the vector's life, in days, after surviving the EIP

Applied to the Garki Project

$$C = (ma \times a \times p^{n} \times b)/(-\ln p)$$

Man biting rate (averaged btwn indoors and outdoors NBCs)

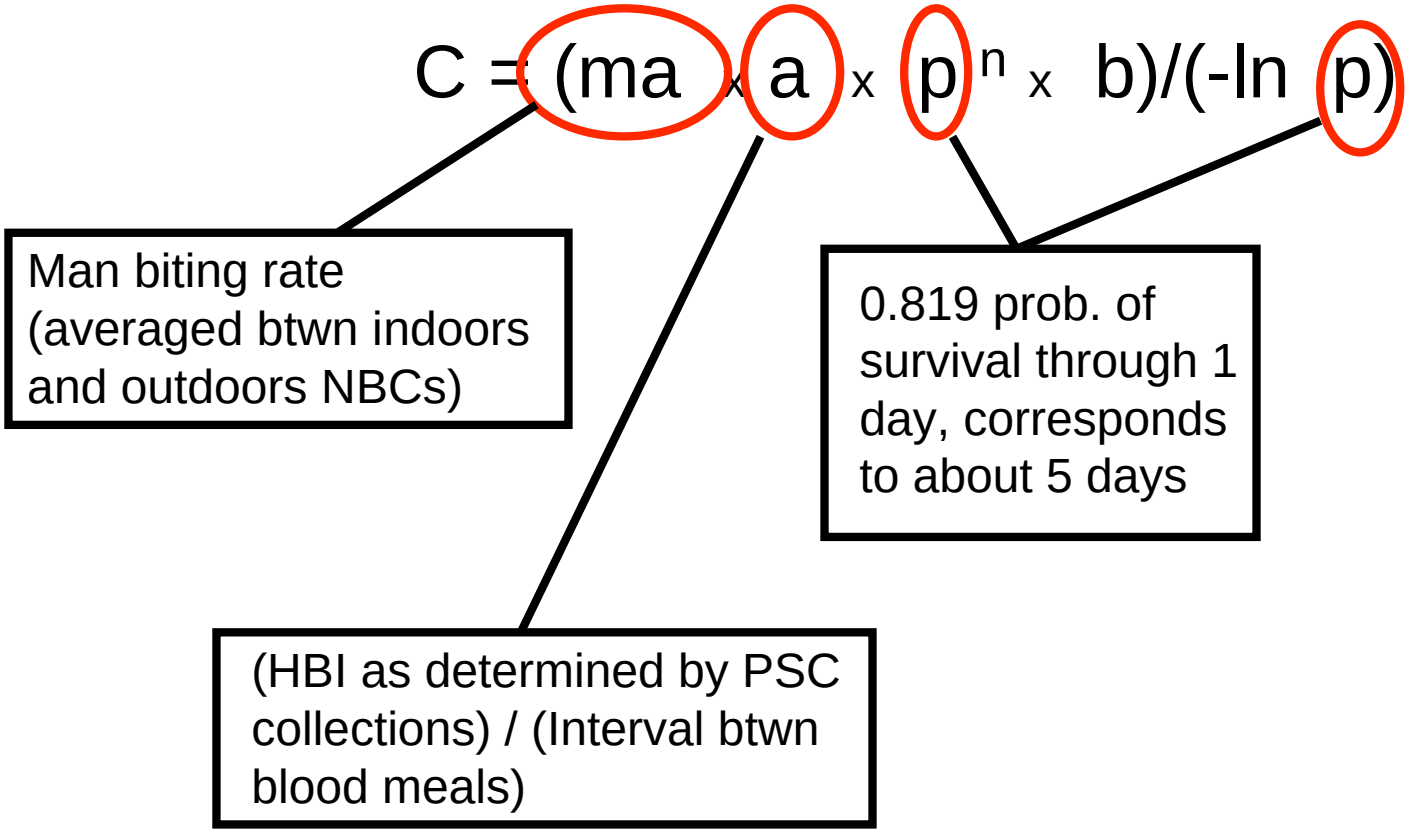
Applied to the Garki Project

$$C = (ma \times a \times p^{n} \times b)/(-\ln p)$$

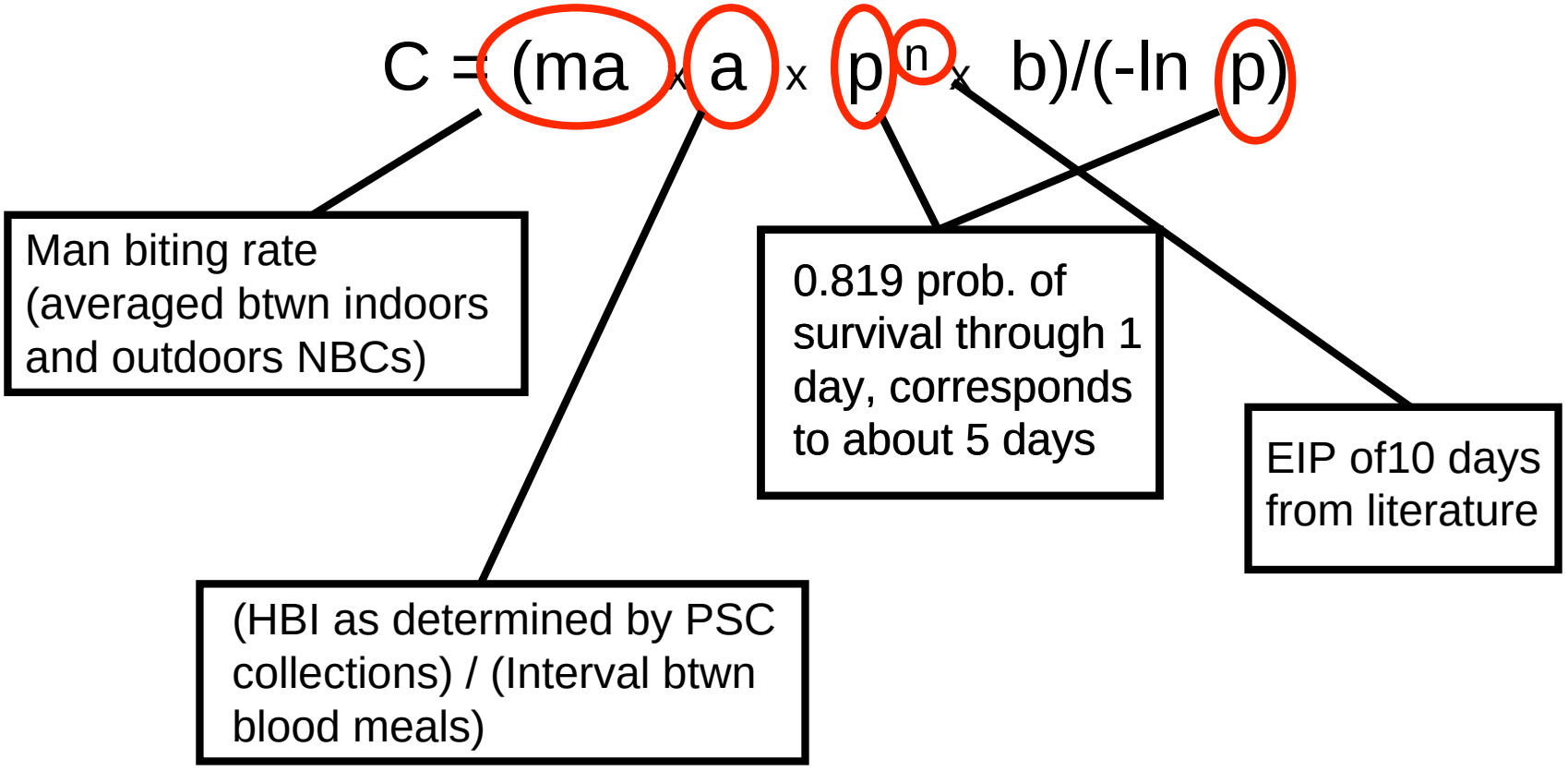
Man biting rate (averaged btwn indoors and outdoors NBCs)

(HBI as determined by PSC collections) / (Interval btwn blood meals)

Applied to the Garki Project



Applied to the Garki Project



Assumptions of Vectorial Capacity in Garki

- Survival of is not affected by age
- Survival is not affected by infection
- Vector and vertebrate populations mix at random
- Homogeneity in susceptibility