

Dragonfly Labia.

The Nymph

- Strength - hold own body
- Cat-like accuracy
- Use as a trap
- Capturing food.

Mechanism

- a. Parts of Labium -
 1. Sub-Mentum
 2. Mentum.
 3. Labial lobes.
 4. Ligula.
- b. Muscles -

1. Abductors fastened to external tendinous prolongation of the labial lobe at its insertion into the mentum, and have their origin in the floor of the sub-mentum proximal to the middle ringe.
2. Adductors inserted to inner tendinous prolongation of labial lobe - originate in floor of sub-mentum a little distal to origin of abductors.
3. Flexors originate on tentorium, a little above the origin of the extensors and insert in the upper margin of the mentum in front of the ringe, by means of a tendon.
4. The extensors originate on the hypopharynx - far above the flexors, and above the adductors near their origin, and are inserted upon the lined ventral margin of the mentum below the ringe.

Developmental History. Labium formed by fusion of 2nd. maxillae. Gersäcker thought that the ligula of the labium was formed by the fusion of the two labialae and that the labial lobe consisted of the fused palpus and galea.

The presence of a distinct suture in certain *Bygoptera*, which starts from the base of the left in the ligula and runs across it to within a short distance of the border before turning to run parallel with the border down to the mentum leads to the opinion that the mentum is formed

by the consolidation of two pairs of appendages of the maxillae, the labial and galeal, and that the lateral lobes represents the palpus alone. This opinion was held by Rambur and Stagn, and it strengthened by conditions in the labia of embryos of *Cnax junius* and *Lesler*, where teeth appear in two sets at the bottom of the mental cleft and seem to represent the tips of the labiae of the maxilla.

Variations in Labia.

1. Libellulidae. - the skimmers - spreaders.
 1. Specialized in an entirely individual direction.
 2. Nymphal labia resemble adult, but lateral lobes are more complicated. Highly specialized.
2. Aeschnines and Gomphines. - big green damselflies - ~~overovers~~.
 1. Similar in nymph and adult, looks in nymph stronger and sharper.
 2. *Tachopteryx* and *Cordulegaster* resemble these strongly. - *Cordulegaster* has also affinity with Libell.
3. Zygoptera.
 1. Most generalized of all but differ greatly from one another - cleft in ligula - movable hook palpus-like - all primitive characters. (black wings)
 2. *Colopteryx* and *Neurobasis* show nymphal labia very deeply cleft, probably not an especially primitive character as it is more marked in older nymphs - perhaps a hole for nymph to dispose of its prey.
 3. *Lesler* has tendency to increase number of teeth and complexity of labium - *Cnax* tends to great simplicity.

Let others study biology

Or jurisprudence or theology

Understand this an engineer

In college & thorough on trigonometry

Studied calculus & geometry

Just to be an mechanical engineer

Both Greek & Latin he did ignore

Really Arts studies are a bore

And this an engineer.

Did we ever know ^{a wise man} ~~such a very wise man~~

For he understands the hydraulic ram

O. K. he is an engineer -

Rods and turbines ^{wheels} ~~engines~~ so queer

So give great joy to an engineer.