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## On the interrelationships between morphology and movement in the tail of cichlid fish *Tilapia nilotica* (L.).

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# ON THE INTERRELATIONSHIPS BETWEEN MORPHOLOGY AND MOVEMENT IN THE TAIL OF THE CICHLID FISH *TILAPIA NILOTICA* (L.)

by

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## SUMMARY

1. An account is given of the morphological structures in the tail region of the "typical fish" *Tilapia nilotica* (fam. Cichlidae), emphasizing the mechanical properties of the caudal skeleton, the vertical septum, the joints between the fin rays and the body, the muscles and tendons and the skin fascia. Two large cartilaginous plates, situated in the vertical septum, are described for the first time.
2. Detailed descriptions of the transformations of the caudal peduncle and fin during short series of lateral undulations of the body and fin are presented.
3. Mutual comparisons of the morphological descriptions with the descriptions of the movements show how structures in the tail are suited to the transfer of propulsive forces, generated by the oscillating tail fin, from the fin to the body. The way structures transfer oscillating movements from the body to the fin and the way muscle activity and several properties of the joints are able to affect the final form of the fin stroke are discussed.
4. A brief account is given of electromyographic data collected and of some problems concerning the use of electromyography in the tail region.
5. It is suggested that the skin fascia collaborates with the myotomes and myosepts to bend the body and the fin.

## CONTENTS

I. Introduction . . . . .	144
II. Methods . . . . .	145
III. Terminology and definitions . . . . .	146
1. Names of the skeleton and parts of the fin . . . . .	146
2. Names of soft parts like muscles, cartilage and connective tissue . . . . .	147
3. Names of planes and movements . . . . .	150
IV. Morphology . . . . .	152
1. Morphological technics . . . . .	152
2. The skeleton, fin rays and raylets . . . . .	152
3. The vertical septum and the connection with the caudal fin . . . . .	155
4. The muscles and tendons . . . . .	161
4.1. Marginal muscles . . . . .	161
4.2. Profundal muscles . . . . .	163
4.3. Superficial muscles and horizontal septum . . . . .	165
5. The skin . . . . .	167
V. Movements of the tail . . . . .	168
1. Technical approach . . . . .	169
2. Description of movements in the frontal planes . . . . .	172