

Differential Linearity in the Fluke

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Eingang des Ms. 5. 12. 1967

Some observations he made on the dolphins (*Tursiops truncatus* and *Lagenorhynchus obliquidens*) of the Dolfinarium at Harderwijk urged Dr. PURVES to show me his manuscript. In this paper on the "Structure of the flukes in relation to laminar flow in Cetaceans" PURVES (1968) gives another example that a cetacean is essentially operating as the terrestrial mammals notwithstanding the adaptations to an aquatic life. I am in favour of Dr. PURVES' view that the upstroke is essentially the power stroke and its implication of the constant direction of laminar flow along the body. It is interesting that the unique structure and function of the upcurling fluke has evolved. In my opinion, however, there is an alternative explanation for the upcurling of the fluke during the downstroke.

The fluke was primarily evolved of such a dimension as to provide thrust commensurate with the size of the large dorsal muscles operating during the upstroke. This implies that the resistance of the flat fluke would be too large for operation by the reduced ventral musculature during the downstroke at the speed attained during the preceding upstroke. The much smaller ventral musculature would be unable to contribute to the forward propulsion of the animal and even cause drag, were it not for the upcurling of the fluke. It may be that this upcurling diminishes the resistance of the fluke to such a degree that the smaller ventral muscles are able to pull the fluke down so fast that a useful forward thrust can be exerted. This force may also play a part — in cooperation with the anterior bodyshape and the flippers — to counteract the tendency of the animal to nose upwards as a result of the depression of the tail trunk caused by the powerful upstroke. The current hydrodynamic research in the matter could give us some insight into this.

Bibliography

PURVES, P. E. (1968): The structure of the fluke in relation to laminar flow in Cetaceans. Z. Säugetierkunde 33.

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SCHRIFTENSCHAU

PAWLININ, WLADIMIR: Der Zobel (*Martes zibellina* L.). Die neue Brehm-Bücherei, Nr. 363. A. Ziemsen Verlag, Wittenberg/Lutherstadt 1966. 102 S., 46 Abb. 6,20 DM.

Es ist sehr verdienstlich, daß der Verlag es durch diese Ausgabe den nicht russisch lesenden Biologen möglich macht, ein Tier kennenzulernen, das außerhalb der UdSSR nicht vorkommt. Ausführlich, manchmal sehr ausführlich geht der Verfasser auf alle Seiten der Biologie dieses

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Zeitschrift/Journal: [Mammalian Biology \(früher Zeitschrift für Säugetierkunde\)](#)

Jahr/Year: 1967

Band/Volume: [33](#)

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