

86. Jacobs, Myron S., Peter J. Morgane, John C. Lilly and Bruce Campbell. 1964.
"Analysis of Cranial Nerves in the Dolphin." *Anatomical Record* Vol. 148. P. 379

①

Reprinted from

The Anatomical Record

86

Volume 148, Number 2, February 1964

ABSTRACTS OF PAPERS READ BY TITLE

379

JACOBS*, Myron S., P. J. MORGANE*, John LILLY* and Bruce CAMPBELL*, Cetacean Brain Laboratory, Department of Anatomy, New York Medical College, New York, N. Y. and Communication Research Institute, Miami, Fla. (Introduced by Arthur V. Jensen) *Analysis of cranial nerves in the dolphin.*

Samples of the optic, oculomotor, trochlear, trigeminal, abducens, facial and stato-acoustic nerves were obtained from two bottlenose dolphins (*Tursiops truncatus*) perfused through the aorta with Windle's solution in the Communication Research Institute laboratory. Nerve samples were embedded in paraffin, sectioned at $6\ \mu$ and stained by the Alzheimer-Mann and Kultschitsky methods.

Nerve fiber populations were determined by a ratio in which "n," the number of fibers counted in any sample, is to "N," the unknown total fiber population as "a," the area of the sample, is to "A," the total area of the cross-section. The value for "a" was calculated from an ocular graticule with the aid of a calibrated stage micrometer. The value for "A" was directly measured with a metric polar planimeter. In order to establish statistical validity at least 5% of the fibers present in each specimen were counted. Certain nerves were also analyzed for percentage content of unmyelinated fibers.

The following cranial nerve populations were established for the dolphin: Optic nerve, 114,300; oculomotor nerve, 6,500; trochlear nerve, 1,900; trigeminal nerve, 159,000; abducens nerve, 1,700; facial nerve, 32,500; stato-acoustic nerve, 112,500. Of these, the third, fourth and seventh cranial nerves were analyzed for percentages of unmyelinated fibers. It was estimated that 25% of oculomotor fibers, 21% of trochlear fibers and 15% of facial fibers were unmyelinated.