to the non-striated muscle cells of the vessel wall. The axons terminate in channels or invaginations of the muscle cell without specialized junction areas. Microtubules 260 Å in diameter are present in the axons along with a variety of sizes (0.2 to 0.3 microns in diameter) of dense cored vesicles. The dense cores are aggregates of smaller (250 Å) dense particles. In the occasional cell bodies of neurones which are encountered the cytoplasm contains large numbers of the characteristic vesicles in close association with an elaborate Golgi region from which the vesicles appear to arise.

Supported by N.S.F. Grant GB-3035.

## 1966 #16

THE OCCURRENCE OF MITOCHONDRIA IN MATURE ERYTHROCYTES OF Myxine glutinosa W. L. Doyle, University of Chicago, Chicago, Ill.

In the circulating blood in the gills of the hagfish the erythrocytes have normal mitochondria as identified in the electron microscope. Not all sections passing through the nucleus show mitochondria but most show one and about 10% show 3-5 mitochondria per section. No ribosomes were observed.

In contrast the mature erythrocytes of <u>Squalus acanthias</u> show polyribosomes but no mitochondria.

In both species there are other vesicles in the erythrocyte cytoplasm and in some of the these myelin forms have a superficial resemblance to mitochondrial cristae.

In Myxine pinocytotic vacuoles occur at the cell membrane.

## 1966 #17

ON THE ORIGIN OF TRIMETHYLAMINE OXIDE (TMAO) IN THE SPINY DOGFISH, Squalus acanthias

Leon Goldstein, Roy P. Forster, and Standish C. Hartman, Harvard Medical School, Boston, Mass., and Dartmouth College, Hanover, N. H.

This investigation is part of a general study on the comparative biochemistry of nitrogen metabolism, especially as related to environment. Trimethylamine oxide (TMAO), which appears to play an osmoregulatory role in elasmobranchs, is found in high concentrations in the body fluids of the dogfish, <u>Squalus acanthias</u>. The source (endogenous vs. exogenous) of this nitrogenous compound is unknown.

The level of TMAO (approximately 70  $\mu$ moles/ml) in the plasma of dogfish maintained in live cars remained relatively constant for weeks even though the fish were not fed and stomachs were found to be empty (this study and Cohen, Krupp and Chidsey, Am. J. Physiol. 194:229, 1958). The ability of whole dogfish and isolated liver preparations to synthesize TMAO from radioisotopically labeled precursors was tested. No counts were detected in TMAO after incubating either liver homogenates or liver slices with C<sup>14</sup>-trimethylamine for 1-3 hours at room temperature under conditions permitting the detection of as little as 1% of the counts incorporated into TMAO.