had occurred lightly and homogeneously over the large central areas of the regenerated scales, while in the peripheral areas it was limited to the outer margins of the concentric growth rings. Calcification was heaviest in the oldest, innermost growth ring; it decreased with successively younger rings and was absent around the outermost margin of the scale.

By virtue of the fluorescent nature of tetracycline, its location in the scales of experimental fishes could be determined by examination under ultra violet light. In regenerated scales, this revealed a pattern of fluorescence exactly coincident with that of calcification described above. In normal scales from tetracycline treated fishes, fluorescence was limited to the very peripheral regions, being especially concentrated on the anterior and lateral margins, and almost absent from the posterior edge of the scale. These results indicate that at the doses employed, tetracycline inhibits calcification of regenerating teleost scales, but is itself localized wherever the limited amounts of calcium are deposited. This spatial correlation between tetracycline localization and sites of calcification testifies to the probability of a direct effect of the former upon the latter. Despite deficient calcification, however, the growth rates of regenerating scales did not appear to be seriously retarded.

Inhibition Of Mineralization In The Embryo Of E. parma And The Mangrove Oyster

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Our previous studies show that embryos of E. *parma* which are reared in sea water containing tetracycline develop skeletons which may be partly or completely inhibited. In an attempt to assess the action of this drug on the mechanism of mineralization, the Ca^{++} and Mg^{++} content of the sea water was increased in excess of the theoretical complexing power of tetracycline. Although these ions were present in sea water much in excess of the normal amounts, protection against inhibition of mineralization did not occur. Examination of the tri-radiate crystal, the skeletal anlage, shows that this structure, a calcite crystal, is either completely absent, or much reduced in size when subjected to the drug environment during development. Similar experiments conducted on the mangrove oyster (Pedalion) show that tetracycline is incorporated in the regenerating and newly formed shell; that the amount and degree of mineralization is reduced, and in addition, the size of the calcite crystals are reduced in size by this treatment. From the above observations it appears that tetracycline inhibition of mineralization consists first in complexing with the calcium and possibly other cations which subsequently results in the inhibition or modfiication of the orderly crystal growth observed in normal specimens.