

A Bibliography on Bioluminescence in Fishes

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発 光 魚 文 献 集

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E. Newton Harvey の *Bioluminescence* が 1952 年に発行されて以来、発光魚についての文献目録がでないで、著者は 1969 年までの発光魚についての文献目録をまとめた。この中 60% はオリジナルな業績であるが残り 60% は一般的な記載か、オリジナルな業績の短い報告である。

発光とか発光器とあまり関係のない記載論文（例えば発光魚の分類）は含まれていない。

各、標題の前の数字は次の通りである。

- (1) 通俗的、一般的な記載、エッセイ、短編
- (2) 形態学、組織学、組織化学、細胞学に関するもの
- (3) 実際の観察、実験的刺激に関するもの
- (4) 生化学に関するもの

The capacity of emitting light, which many fish groups have, has been a fascinating subject for centuries. Many reasons may be evoked to explain such an appeal, especially that of the last one hundred years. The fishes are the only vertebrates with bioluminescent species; the fact that only marine representatives do possess luminous tissues; the striking diversity of types of luminescence, types of structure and patterns of distribution involved; the fact that similar types or arrangements of light organs may be equally present in quite unrelated phyletic groups. That the phenomenon of fish bioluminescence has been considered intriguing and stimulating is reflected by the relatively large number of small essays, reviews and popular articles devoted to it. Actually, our understanding of the phenomenon, both in ecological and biochemical terms, is merely at its start, but this trend is hopefully recognized by the contemporary specialists.

Since the publication of Harvey's (1952) classical text-book on bioluminescence, there has been no further attempt to sum up the rather dispersed literature on fish luminescence. The present bibliography is an effort to survey this field up to 1969 and to complete and correct Harvey's fish references. Nearly 60% of the items, most of which are original scientific contributions, have been consulted personally by the compiler. Most of the other 40% listed seem to be popular articles or short comments on original works. Any publication which could not be strictly related to luminescence and light organs (for example, systematics of luminescent fish) was excluded.

Sources of reference are too numerous and diverse to mention here, though I may name the following: Bashford Dean's *The Bibliography of Fishes*. 3 vols. Russell & Russell, New York. 1917-23 (Reissued, 1962); *The Zoological Record*, Pisces (Zoological Society of London); *International Catalogue of Scientific Literature*, sections General Biology and Zoology (Royal Society of London); Harvey (1952, 1957b). At any rate, whenever a paper is unidentifiable because it was cited incom-

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Manuscript received on February 4, 1971, contribution from the Yokosuka City Museum, No. 220.

pletely, the source of the reference is mentioned. A few early contributions are listed, though not all of them, mainly for historical perspective, since they deal with putrescent fishes exhibiting saprophytic luminous bacteria.

The numbers inserted in the left margin of the page refer to the aspect of fish luminescence involved in each paper or book: (1) review, essay, comments, popular; (2) morphology, histology, histochemistry, cytology; (3) field observations, experimental stimulation; (4) biochemistry.

I would like to thank Dr. D. E. McAllister, National Museum of Natural Sciences, Ottawa, whose encouragement and help in locating some references have been greatly appreciated. Special thanks are due Drs. Y. Haneda (Yokosuka City Museum, Japan), O. Munk (University of Copenhagen, Denmark) and J. A. C. Nicol (University of Texas, Port Aransas) for their comments and corrections of a first typescript, and for providing additional items to the list. Of course, any responsibility for the final making of the compilation is mine.

Le pouvoir d'émettre la lumière, présent chez plusieurs groupes de poissons, a fasciné les esprits durant des siècles. Plusieurs raisons peuvent être invoquées pour expliquer un tel attrait, particulièrement celui du siècle dernier. Seuls les poissons comptent des espèces bioluminescentes parmi les Vertébrés; cette faune piscicole n'est représentée que par des espèces marines; la diversité très frappante des types de luminescence, des types de structure qui y sont associés, et des modes de distribution de ces organes; le fait que certains types et certaines dispositions d'organes lumineux se retrouvent chez des espèces présentant peu d'affinité entre elles. Le vif intérêt accordé au phénomène de la bioluminescence des poissons est illustré de façon tangible par le nombre relativement élevé de courts essais, revues et articles de vulgarisation qui lui ont été consacrés. Présentement, notre compréhension du phénomène en termes écologiques et biochimiques n'en est qu'à ses premiers balbutiements; heureusement, l'orientation des recherches en ce sens se fait de plus en plus sentir.

Depuis l'apparition du monographe classique de Harvey (1952) sur la bioluminescence, aucune compilation sérieuse de la littérature concernant les poissons n'a été tentée. Le sujet, il est vrai, s'y prête mal car les références sont éparpillées dans une foule de périodiques et ouvrages hétéroclites. La présente bibliographie représente une tentative d'exploration du sujet jusqu'à l'année 1969 comprise, et prétend compléter et corriger les références mentionnées par Harvey sur les poissons. Près de 60% des contributions, dont une large proportion consiste en travaux originaux, ont été consultées par le compilateur. Le reste consiste en bonne partie d'ouvrages populaires ou de courts commentaires sur des travaux originaux. Toute publication qui ne traite pas strictement de la luminescence et/ou des organes lumineux (par exemple, la systématique des poissons luminescents) fut exclue.

Les sources bibliographiques sont nombreuses et variées; nous ne mentionnerons que les principales: Bashford Dean, *The Bibliography of Fishes*. 3 Vols. Russell & Russell, New York. 1917-23 (Réimprimés, 1962); *The Zoological Record*, Pisces (Société Zoologique de Londres); *International Catalogue of Scientific Literature, General Biology & Zoology* (Société Royale de Londres); Harvey (1952, 1957b). Lorsque des publications ne sont pas citées complètement, la source bibliographique consultée est indiquée. Je signale que quelques-unes des toutes premières contributions ont été

ajoutées à titre purement historique, puisqu'elles traitent de poissons morts visités par des bactéries saprophytes lumineuses.

Les numéros placés à la gauche de chaque référence identifient l'aspect de la luminescence spécialement traité dans la publication ou le livre en question: (1) revue, essai, commentaires, vulgarisation; (2) morphologie, histologie, histochimie, cytologie; (3) observations sur le terrain, stimulation expérimentale; (4) biochimie.

Je désire exprimer ma vive reconnaissance au Dr. D. E. McAllister, du Musée National des Sciences Naturelles, Ottawa, pour avoir encouragé ce travail et pour les précieuses références qu'il a portées à mon attention. Mes remerciements s'adressent également aux Drs. Y. Haneda (Musée municipal de Yokosuka, Japon), O. Munk (Université de Copenhague, Danemark) et J. A. C. Nicol (Université du Texas, Port Aransas) pour leurs commentaires bienveillants et les corrections effectuées sur une première version manuscrite, et pour avoir suggéré des additions à la liste. Evidemment, j'endosse toute responsabilité concernant le contenu de la compilation finale.

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