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# This Week's Citation Classic®

**Pickford G E & Atz J W.** *The physiology of the pituitary gland of fishes.* New York: New York Zoological Society, 1957. 613 p.
[Bingham Oceanographic Lab., Yale Univ., New Haven, CT; and, New York Aquarium, Brooklyn, NY]

This book comprehensively reviews the scientific literature on the functions of the piscine pituitary gland or hypophysis through the middle of 1956. In all, 1,980 references were consulted, half dealing with the subject itself and more than a third with supplementary information about the endocrinology of the tetrapods. Experiments and their results are described in detail in 79 tables (228 pages). Cross-references, a combined bibliography and author index, and an extensive subject index provide easy access to the diverse contents. [The *SCI*® indicates that this book has been cited in more than 650 publications.]

## Fish Endocrinology Reviewed

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Forty years ago, when Grace Evelyn Pickford invited me to collaborate with her in reviewing the literature on the pituitary gland of fishes, the endocrinology of these aquatic carnets was still considered an esoteric subject by most experimental biologists. One reason for this was the frustrating experiences many investigators had suffered trying to keep fishes alive and well in their laboratories.[1] Another, more basic, reason was a widespread lack of appreciation of the benefits that biomedically oriented research could reap from a more comparative, that is, evolutionary, approach to its problems.[2] Nevertheless, more and more scientists were beginning to experiment with uncommon animals and to put their questions into an evolutionary frame of reference. One early, unmistakable manifestation of this change in attitude was a highly successful symposium on the comparative endocrinology of vertebrates, sponsored by the Society of Endocrinology, that was held in Liverpool in 1954.

Pickford must have felt intimations of this wave of the future in 1947 when she started to experiment with the killifish, *Fundulus heteroclitus*. She mastered the technique of removing its tiny pituitary from the base of the brain and, with the help of biochemist Alfred E. Wilhelmi, was the first to demonstrate the presence of a hypophysial growth hormone in fish. Pickford was a research associate of the Bingham Oceanographic Laboratory of Yale University. She made good use of Yale's outstanding libraries to build an enormous collection of cross-indexed bibliographic references and abstracts on fish endocrinology and related topics.[3] This never-ending project made her realize how useful a comprehensive review of the scattered literature would be.

I met Pickford at the New York Aquarium of which I was the assistant curator and to which she had turned for advice in maintaining her fish. I also was a PhD candidate in biology in the Graduate School of Arts and Science of New York University. I showed her a term paper on experimental reproductive endocrinology in fishes that I had prepared as a requirement for Professor Albert S. Gordon's course in endocrinology. Partly responsible for Pickford's surprising interest in it was its tabular treatment of the various experiments (90 of the 175 typescript pages consisted of tables). Pickford already had been convinced that such data could be described most concisely in this manner. Moreover, she seriously had been considering the preparation of a review of all of fish endocrinology but had been daunted by the immenseness of the task. Perhaps, if it were limited to just one gland, the pituitary, and if I would handle the reproduction material, a scholarly treatment by the two of us could be both meaningful and manageable.

We began to work together early in 1953 and expected to be finished in a year or so.[4] It took us four. Finding a publisher appeared impossible; finally, as a result of the strong advocacy of William Bridges, curator of publications of the New York Zoological Society, the parent organization of the New York Aquarium, as well as an advance of $5,000 from my father, Louis A. Atz, the society agreed to assume all the additional costs of publication. With Bridges's invaluable editorial assistance, an edition of 1,000 copies appeared in May of 1957. Five years later 882 copies had been sold (at $6.00), and a second printing of 500 copies followed a year later.[4]

Our book was published at an auspicious time; for a few years it was the only book in English trying to cover the comparative endocrinology of the nontetrapodous craniates.[5,6] Although its text may be dated, its tables will make it a useful reference for years to come.

1. **Atz J W.** *Fundulus heteroclitus* in the laboratory: a history. *Amer. Zool.* 26:111-20. 1986.
2. **Nelson G J.** Outline of a theory of comparative biology. *Syst. Zool.* 19:373-84. 1970.
3. **Ball J N.** In memoriam Grace E. Pickford (1902-1986). *Gen. Comp. Endocrinol.* 65:162-5. 1987.
4. **Atz J W.** Ready reference for the fishery biologist. *Anim. Kingdom* 65:83-6. 1962.
5. **Barrington E J W & Jørgensen C B,** eds. *Perspectives in endocrinology. Hormones in the lives of lower vertebrates.* London: Academic Press, 1968. 583 p.
6. **Schreibman M P & Pang P K T,** eds. The current status of fish endocrine systems. *Amer. Zool.* 13:710-936, 1973.

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