

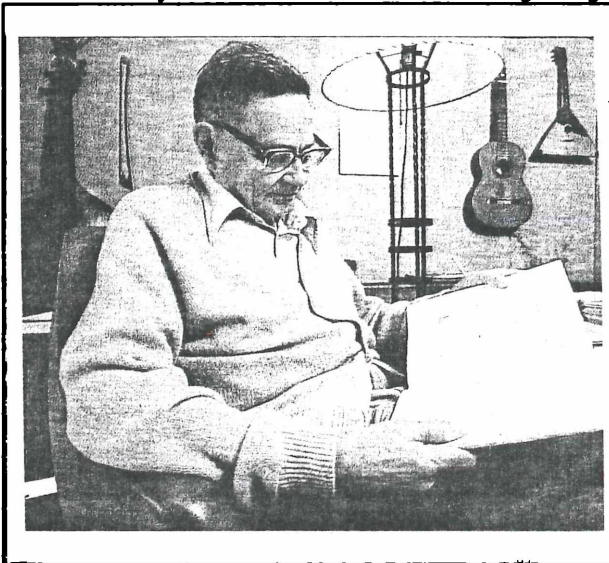
**REPRINT OF ARTICLE IN NOV. 12, 1984 SPORTS ILLUSTRATED**

(Editors Note - Bob Boyle brought this article to my attention this past year. Since Bill Ricker is now 91 years young and says "he is doing OK healthwise, OK for an old man!", and "was sorry to miss the meeting last year in Argentina". I thought readers of PERLA would enjoy reminiscing with this very interesting article. Reprint rights were obtained from Sports Illustrated in early 2000.

**by ROBERT H. BOYLE**

**FISHERIES BIOLOGIST WILLIAM E. RICKER IS A REAL HALL OF FAMER IN HIS FIELD**

After years of following baseball and occasionally dipping into the sciences, I have arrived at these conclusions: Great mathematicians are like fastball pitchers. They're at their peak in their 20s, and after that they're finished. Great chemists are like curveball or screwball pitchers. They make their contributions in their 30s. But great biologists are like knuckleball pitchers. They can go on for years because they don't burn out. In fact, biologists get better with age.



Ricker can be bookish when discussing his curve.

The truth of it came home to me long ago when I had the good fortune to meet one of my longtime heroes, Dr. William E. Ricker, who at 76 is the Phil Niekro of fisheries biology. Ricker is the author of nearly 200 papers, articles and books about fish, aquatic insects and kindred subjects, and for a dozen years, from 1950 to '62, he served as the editor of the *Journal of the Fisheries Research Board of Canada* (now the *Canadian Journal of Fisheries and Aquatic Science*), which he made into the best publication of its kind in the world.

A tall, bespectacled man who sports a 1957 Johnny Unitas crew cut, Ricker is gracious and polite in that old-fashioned way that characterizes many Canadians, except when they're playing hockey. His office at the Pacific Biological Station in Nanaimo on Vancouver Island, B.C., where he served as chief scientist until his "retirement" in 1973, is awash with books and papers. No clean-desk man, Ricker works on two or three problems simultaneously until the answer to one, or all of them, suddenly pops into his head.

"Everybody doesn't work the same way I do," he says "I've never consciously divided the day into sections. When there's a deadline I concentrate on the subject, whatever it is. I often wake up in the middle of the night and I stay awake for an hour or so, and some good ideas come to me at that time. When they do, I hop out of bed and write them down for fear they won't last. New or unusual ideas or relationships come spontaneously when you're not actively thinking about them."

The late Dr. George W. Bennett, who was the head of the aquatic biology section at the Illinois Natural History Survey and the leading authority on largemouth bass once remarked, "Bill Ricker looks like a big country boy but he's a genius." Dr. James Atz, a former curator of ichthyology at the American Museum of Natural History, says, "If Ricker worked in molecular biology or some other field in which Nobel prizes are given, he would have won at least one."

Ricker is the godfather of modern fisheries science, a different kettle of fish from fisheries biology, also a Ricker specialty. Fisheries science deals with the dynamics of fish population and Ricker figured out much of the mathematical methodology now used in this arcane field. The celebrated Ricker curve isn't a pitch but a graph representing the number of progeny added to a fish population by any given number of parent spawners. (The graph is based on the equation  $R = \alpha P e^{-\beta P}$ ; where  $R$  = number of progeny,  $\alpha$  = ratio of  $R$  to  $P$  when the stock is almost zero,  $P$  = size of parental stock,  $e = 2.718 \dots$  and  $\beta$  = a parameter with dimensions of  $1/P$ .) Ricker's 382 page *Computation and Interpretation of Biological Statistics of Fish*

*Populations*, which is crammed with far more complex equations than that for the Ricker curve, is commonly known as “the Green Book” because of the color of the binding. It’s *The Baseball Encyclopedia* of the field.

Also long intrigued by fecundity of the Pacific salmons, Ricker proposed, in a paper published back in the 1950’s, that they be stocked in waters to the east, such as the Great Lakes. A decade later, after sea lampreys had wiped out the lake trout in the Great Lakes and alewives had taken over, other scientists picked up on his suggestion, and chinook and coho salmon now flourish in the lakes, providing the basis of a multimillion-dollar sports fishery.

The Green Book is very heavy stuff, but Ricker’s involvement with mathematics is only the means to any number of ends. Ricker’s use of mathematics to check his insights helps make him unique. As another admirer, Dr. R. Ian Fletcher, former professor of fisheries and biomathematics at the University of Washington, puts it, “Darwin never wrote an equation in his life, but Ricker is like a Darwin who did.”

Except for 11 years he served as a professor at Indiana University—he took over Alfred Kinsey’s course in ornithology when Kinsey, who started out as an entomologist specializing in gall wasps, decided to devote himself to the study of human sexuality—Ricker has lived and worked in Canada. Yet in 1969, when the American Fisheries Society, a U.S. organization with international members, bestowed its first Award of Excellence medal, it bypassed several outstanding biologists in this country to give the award to Ricker for his “superb and original contributions” to the methodology of statistically sound sampling and interpretation of fish populations; the relationship between parent fish stocks and the numbers of surviving progeny; his new concepts about growth, mortality and predator influence on salmon; and his theory of lake circulation.

For all the accolades, Ricker’s views don’t always prevail. As he told the society a year later (he was unable to attend the award ceremony in ‘69 because he was in U.S.S.R.), “Practically every one who has ever gone fishing considers himself an expert in fish management and doesn’t hesitate to say so. Also, the man who uses any particular type of fishing gear invariably regards all other types as pernicious and destructive; but he can insist, with a straight face, that *his* kind of fishing couldn’t possibly do the stock any harm.

“And such illogical opinions can on occasion build up a head of pressure that cannot be resisted. Thus, there are many medium-sized streams, lakes and reservoirs on this continent that would benefit

from a small net fishery but are wholly reserved for angling. As a result, fine stocks of whitefish and ciscoes go unused, suckers and buffaloes flourish, and even species like crappies may be greatly underutilized."

In bestowing its medal, the society noted, as an afterthought, that Ricker had a "sideline interest" in aquatic insects. This was like saying that Leonardo dabbled in painting. Ricker was then the world's leading authority on the insect order Plecoptera (stoneflies), an important food for trout. In the 1940s he completely rearranged some parts of the classification of this order, mainly on the basis of the evolutionary development of the genitalia. "Ricker smashed the old chaotic order of stoneflies," says Dr. Sandy B. Fiancé, a stonefly specialist, "and what he built from the wreckage was a thing of beauty and simplicity that made evolutionary sense."

Ricker's stature in stonefly and fisheries research has been so outstanding that some scientists automatically assume that two experts working in two different fields happen to have the same name and middle initial. They are surprised to learn, as I have found, that there is only one William E. Ricker and that he is the expert in both fields.

Amazingly enough, Ricker first took up the study of stoneflies as a hobby. As far as he is concerned, anyone could become interested in them, and he cites the example of Raymond A. Hays, who began sending Ricker stoneflies for identification some years ago. Hays was a custodian in Bozeman, Mont., but he had a good reference library at hand because he happened to mop the floors in the zoology building at Montana State. He read voraciously, collected stoneflies from Hyalite Creek near the campus and corresponded with Ricker. "Hays was as good or better than I was," Ricker says.

Hays made Hyalite Creek perhaps the most studied stonefly stream in North America, if not the world. He collected a record 55 different species from it, including one previously unknown, which Ricker named *Isocapnia hyalita*. In honor of the energetic custodian, Ricker named a new stonefly species found in Yellowstone National Park *Nemoura haysi*, and when he collaborated with several other entomologists on a study, *The Stoneflies (Plecoptera) of Montana*, published by the American Entomological Society in 1972. Ricker saw to it that Hays was listed as one of the authors.

Although Ricker sometimes writes letters to friends in Latin, he doesn't necessarily use the customary Latin or Greek to name new species of stoneflies. "The classical languages have been rather thoroughly ransacked," he says. "Scientific names proposed for organisms should preferably be distinctive, euphonious and

descriptive, in that order of importance," he says. Ricker prefers to use Spanish, native American Indian or Russian words for scientific names; he's familiar with, if not fluent in these languages. But he says, "My only claim to linguistic virtuosity is that I can sing at least one song in English, French, German, Russian, Spanish, Italian, Latin and Japanese." He is the author of the *Russian-English Dictionary for Students of Fisheries and Aquatic Biology* and has translated about 100 Russian scientific papers into English. The species name *Alloperla usa*, a stonefly that Ricker named, comes from the Russian word *usy* (mustache). He chose it because of the patch of hairs on the stonefly's behind. *Zapada chila* another stonefly named by Ricker, is both Russian and Spanish. The generic name *Zapada* comes from the Russian *zapad* (west)—because the genus occurs mainly in western North America—while *chila* comes from the Spanish for red pepper. Ricker thought this particular insect was "a red-hot discovery" because it was the first one found in the East. He gave a specimen of *Allocapnia* the species name of *aurora* "because it suddenly dawned on me that this must be a new species."

In his spare time—what there is of it—Ricker golfs, trolls for salmon and does a bit of fly-fishing. "I was probably at my peak when I was in my 40s," he says. "Still, I suppose a biologist goes downhill more slowly than a mathematician or chemist because the accumulated background tends to make up for declining analytical powers. I'm not as strong as the young fellows, but I know the tricks a lot better."